

Advanced Irrigation by Eagle Point

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ADVANCED IRRIGATION

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P.O.C.



Figure 1-1 P.O.C. Menu

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P.O.C. Wizard

ADVANCED IRRIGATION ➔ P.O.C. ➔ WIZARD

KEY-IN COMMAND: ai pocwi z



Figure 1-2 Advanced Irrigation Tool Bar



Figure 1-3 P.O.C. Wizard Dialog Box

In the **Advanced Irrigation** module, you have the option of having the software assist you in determining your available flow rate, as well as your working pressure. You have the ability to specify whether you are using a municipal water supply or utilizing a pump. Once this is determined, you indicate the static pressure at the source and flow rates. When that information is entered, you can identify the elevation change as well as the type of pipe. You also have the ability to select the model of backflow preventer and any other items that influence the flow rate or operating pressure. The P.O.C. Wizard is designed to guide you through a step-by-step process to accurately determine your available pressure and flow rate.

P.O.C. Specifications

Let the Wizard help you determine available water for the P.O.C.

The Wizard guides you through each step to determine your available pressure and flow rate. This step-by-step procedure assists you with accurately calculating water availability on the specified site.

Water System and Description

P.O.C. Specifications

Status:

- Water System and Description
- Pressure Main
- Service Line
- Water Meter
- Backflow Preventer
- Delivery Line
- Pressure Loss Items

Description:

Enter a description for this P.O.C.:

6HP

<Example: Main connection at north end of site>

Enter a label for this P.O.C.:

POC 1

<Example: P.O.C. 1 >

Type of water system:

Municipal

<< Back Next >> Cancel

Figure 1-4 P.O.C. Specifications – Water System and Description Dialog Box

P.O.C. Specifications – Water System and Description Dialog Box Definitions

Option	Function
Enter a description for this P.O.C.	Type a complete description of the point of connection in this edit field. This is useful because a complete description can be placed, as opposed to an abbreviated one.
Enter a label for this P.O.C.	Type a user-definable label for the point of connection in this edit field. This is the label that will be annotated in the drawing.
Type of water system	This drop list allows you to select between the two possible sources. Your selection choices are either Municipal or Pump.

Pressure Main

Figure 1-5 P.O.C. Specifications – Pressure Main Dialog Box

P.O.C. Specifications – Pressure Main Dialog Box Definitions

Option	Function
What is the pressure?	In this edit field type the static pressure at the main line. This is a user-definable value. This value is listed in psi (pounds per square inch) in English units and bars in metric units.
Elevation change from main to P.O.C.	You may type the total change in elevation between the main and the point of connection in this edit field. This value accurately determines the pressure with any elevation changes taken into consideration.

Service Line

Figure 1-6 P.O.C. Specifications – Service Line Dialog Box

P.O.C. Specifications – Service Line Dialog Box Definitions

Option	Function
What type of pipe is the service line?	Select the type of pipe that was used in the placement of the service line from this drop list. Select from an extensive database of pipe types. This database can be modified to include any type of pipe desired. You can modify the pipe listing in Edit Pipe Database under the Database menu.
What is the nominal size?	Select the size of the pipe that was used with the service line from this drop list. You have the option of selecting any standard size pipe. You can modify the pipe size in the Edit Pipe Database command.
How long is the service line?	Enter the length of the service line in this edit field. This is the length from the water main to the water meter.

Water Meter

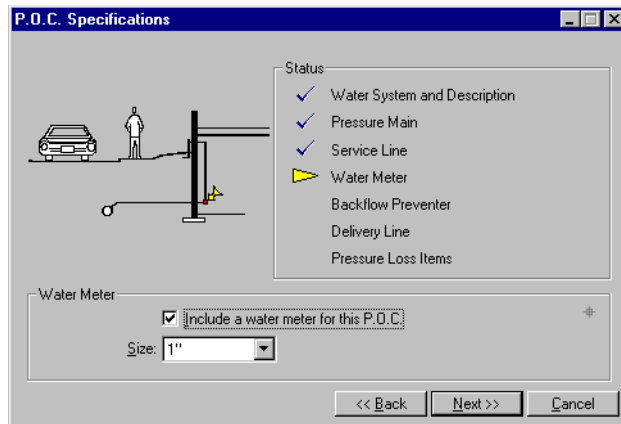


Figure 1-7 P.O.C. Specifications – Water Meter Dialog Box

P.O.C. Specifications – Water Meter Dialog Box Definitions

Option	Function
Include a water meter for this P.O.C.	You have the option of having a water meter included with your calculations. Simply click in the box to the left of the description. A check mark displays if this option is toggled on.
Size	Use this drop list to select the size of the meter to be installed. Choose from a wide selection of common sizes (e.g., 1", 1 ½"). You can add to or modify this list of sizes by selecting the Edit Equipment Database command from the Database menu.

Backflow Preventer

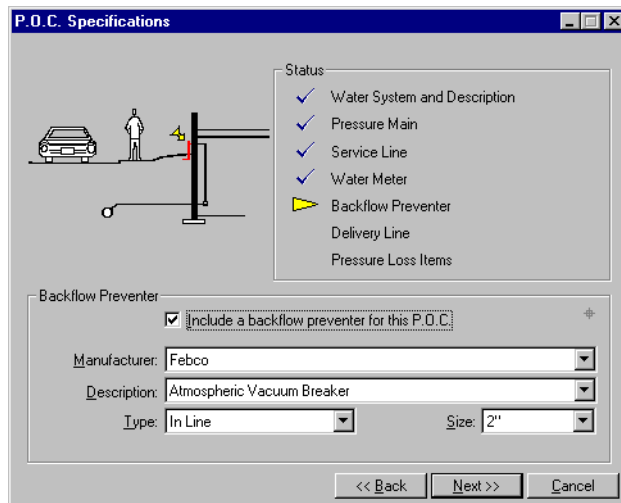


Figure 1-8 P.O.C. Specifications – Backflow Preventer Dialog Box

P.O.C. Specifications – Backflow Preventer Dialog Box Definitions

Option	Function
Include a backflow preventer for this P.O.C.	You have the option of having a backflow preventer included with your calculations. Simply click in the box to the left of the description. A check mark displays when this option is toggled on.

P.O.C. Specifications – Backflow Preventer Dialog Box Definitions

Option	Function
Manufacturer	Use this drop list to select the name brand of the backflow device to be installed. Choose from a predefined list of commonly used devices. You have the ability to modify the database to add any custom brands. To modify the drop list, select Database → Edit Equipment Database. Choose the Backflow Preventers option in the Edit Equipment Database dialog box.
Description	Select the type of backflow preventer that you want to use. You are able to choose between a vacuum breaker and a reduced pressure model.
Type	The type of backflow device is displayed in this drop list. An example is "In Line."
Size	Select from a list of predefined sizes for the preventer. The two most common sizes, 1" and 2", are listed. This listing can also be modified in the Backflow Preventer Database Editor dialog box.

Delivery Line

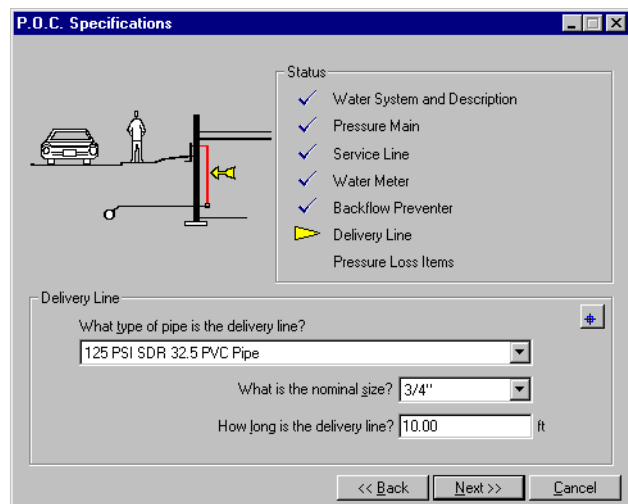


Figure 1-9 P.O.C. Specifications – Delivery Line Dialog Box

P.O.C. Specifications – Delivery Line Dialog Box Definitions

Option	Function
What type of pipe is the delivery line?	Use this drop list to select the type of pipe that was used in the placement of the delivery line. Select from an extensive database of pipe types. This can be modified to include any type of pipe desired in the Pipe Database Editor.
What is the nominal size?	Use this drop list to select the size of the pipe that was used with the delivery line. You have the option of selecting any standard size of pipe. This list can be modified in the Pipe Database Editor.
How long is the delivery line?	Enter the length of the delivery line in this edit field.

Pressure Loss Items

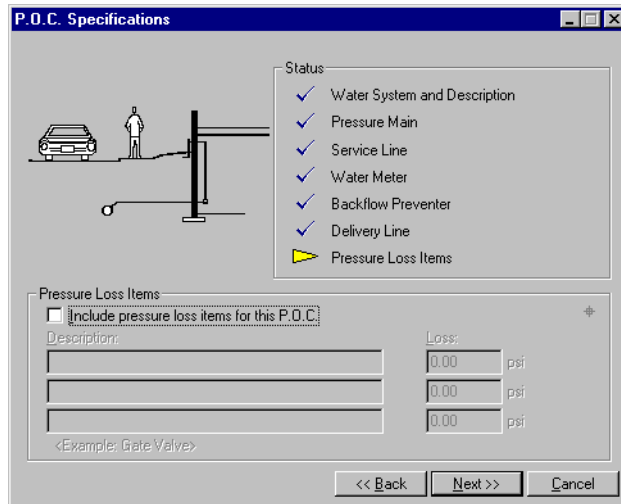


Figure 1-10 P.O.C. Specifications – Pressure Loss Items Dialog Box

P.O.C. Specifications – Pressure Loss Items Dialog Box Definitions

Option	Function
Include pressure loss items for this P.O.C.	You have the option of selecting other items to be included in the water calculations. An excellent example of this is a gate valve. You have the ability of adding up to three items for the pressure loss calculations.
Description	In this edit field, type the description of the device to be added.
Loss	In this edit field, type the amount of pressure loss that the added item creates in the system. These losses are commonly found in the manufacturer's specification sheets.

Point of Connection

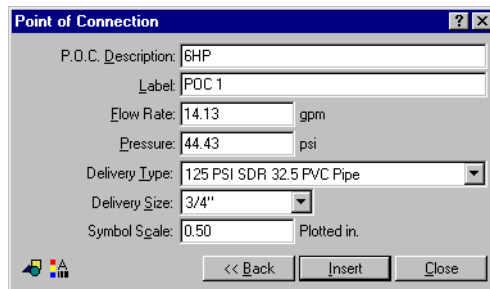




Figure 1-11 Point of Connection Dialog Box

Point of Connection Dialog Box Definitions

Option	Icon	Function
P.O.C. Description		This edit field displays the description of the newly defined point of connection.
Label		This edit field displays the label of the newly defined point of connection. This label is what is placed into the drawing.
Flow Rate		This edit field displays the flow rate of the newly defined point of connection.
Pressure		This edit field displays the calculated working pressure of the point of connection.
Delivery Type		This edit field displays the delivery type of the point of connection.
Delivery Size		This drop list displays the delivery size of the point of connection.

Point of Connection Dialog Box Definitions

Option	Icon	Function
Symbol Scale		You have the option of selecting the size of the symbol to be placed into the drawing. This is a user-definable option. Most commonly, the size of the point of connection is one-and-a-half to two times the size of the sprinkler head. This helps in identifying and being able to tell the difference between the sprinkler heads and the points of connection at a glance.
CAD Settings		The settings in the CAD Settings dialog box control the layer upon which an item is placed, as well as the color, linetype, and width.
Text Properties		The settings in the Text CAD Settings dialog box control the layer upon which the text is placed, as well as the color, style, text style, and height.

QuickSteps

1. Select P.O.C. → Wizard.


The P.O.C. Wizard dialog box (Figure 1-3 on page 2) displays.

2. Turn on the Let the wizard help you determine available water for P.O.C. radio button and click on OK.

The P.O.C. Specifications – Water System and Description dialog box (Figure 1-4 on page 3) displays.


3. Enter a P.O.C. (point of connection) description, as well as a label. Select **Municipal** for the type of water system and click on Next.

The P.O.C. Specifications – Pressure Main dialog box (Figure 1-5 on page 4) displays.

 *The description for the P.O.C. can be as specific as the exact location or generalized. The label is user-definable.*


4. Enter the static pressure at the water source, as well as the elevation change from the mainline to the P.O.C. and click on Next.

The P.O.C. Specifications – Service Line dialog box (Figure 1-6 on page 4) displays.

 *The static pressure is site/area-specific. By entering the elevation change, the software is able to account for the pressure loss/gain due to elevation.*

5. Select the type and size of the service line, as well as the length and click on Next.


The P.O.C. Specifications – Water Meter dialog box (Figure 1-7 on page 5) displays.

 *You may select the pipe type and the size from a database of various pipe types. If the pipe type that you are utilizing is not present, you may add it through the Edit Pipe Database command. See Pipe Database Editor on page 132 for more information.*

6. Select the size of the water meter, if applicable, to be utilized.


7. Click on Next after providing the desired information.

The P.O.C. Specifications – Backflow Preventer dialog box (Figure 1-8 on page 5) displays.

 *The size of the meter selected assists the software in calculating the proper flow rate and pressure drop.*


8. Select the backflow preventer to be used in this P.O.C. Select the size and manufacturer, as well as the type. Click on Next when complete.

The P.O.C. Specifications – Delivery Line dialog box (Figure 1-9 on page 6) displays.

-  You may select from a database of backflow preventers provided with **Advanced Irrigation**. This database of manufacturers is customizable, so you have the ability to make any desired changes. You can access this database by selecting *Backflow Preventers* from the *Edit Equipment Database* dialog box. See *Backflow Preventer Database Editor* on page 139 for more information.


9. Select the type and size of the delivery line, as well as the length and click on Next.

The P.O.C. Specifications – Pressure Loss Items dialog box (Figure 1-10 on page 7) displays.

-  You may select the pipe type and the size from a database of various pipe types. If the pipe type that you are utilizing is not present, you may add it through the *Edit Pipe Database* command. See *Pipe Database Editor* on page 132 for more information.

10. Add any items that you would like included in the pressure loss calculations. Enter the flow loss values (in psi or bars, depending on units) provided by either the manufacturer or your personal values. Click on Next when complete.

The Point of Connection dialog box (Figure 1-11 on page 7) displays.

-  You may add any items that the software has not yet included. These values could be additional gate valves, etc.

11. Verify the information in the Point of Connection dialog box and click on Insert.

You are prompted to select a location in the drawing in which to place the P.O.C. symbol.

12. Graphically click where it is to be placed.

The symbol is placed in the drawing. You are prompted to select a label insertion point.

13. Click to select the label insertion point.

The label is placed in the drawing.

14. Click on Close in the Point of Connection dialog box to end the command.

Pump Source

Water System and Description

The screenshot shows the 'P.O.C. Specifications' dialog box with the 'Water System and Description' tab selected. On the left is a diagram of a water system with a pump and various components. On the right is a 'Status' list with the following items: 'Water System and Description' (selected with a yellow triangle), 'Pump', 'Service Line', 'Water Meter', 'Backflow Preventer', 'Delivery Line', and 'Pressure Loss Items'. Below the status list are three input fields: 'Enter a description for this P.O.C.' with the text '6HP', 'Enter a label for this P.O.C.' with the text 'POC 1', and 'Type of water system:' with a dropdown menu set to 'Pump'. At the bottom are three buttons: '<< Back', 'Next >>', and 'Cancel'.

Figure 1-12 P.O.C. Specifications – Water System and Description Dialog Box

P.O.C. Specifications – Water System and Description Dialog Box Definitions

Option	Function
Enter a description for this P.O.C.	Type a complete description of the point of connection in this edit field. This is useful because a complete description can be placed as opposed to an abbreviated one.
Enter a label for this P.O.C.	Type a user-definable label for the point of connection in this edit field. This is the label that will be annotated in the drawing.
Type of water system	This drop list enables you to select between the two possible sources. Your selection choices are either Municipal or Pump.

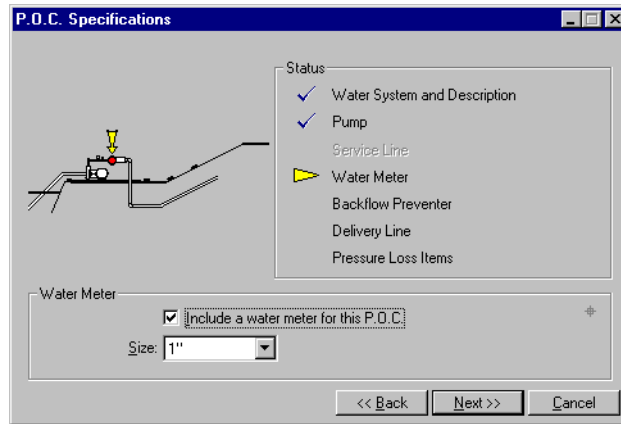
Pump

The screenshot shows the 'P.O.C. Specifications' dialog box with the 'Pump' tab selected. On the left is a diagram of a water system with a pump and various components. On the right is a 'Status' list with the following items: 'Water System and Description' (deselected), 'Pump' (selected with a yellow triangle), 'Service Line', 'Water Meter', 'Backflow Preventer', 'Delivery Line', and 'Pressure Loss Items'. Below the status list are three input fields: 'What is the rated flow?' with the value '5.00' and unit 'gpm', 'What is the pressure?' with the value '50.00' and unit 'psi', and 'Elevation change from pump to P.O.C.' with the value '0.00' and unit 'ft'. At the bottom are three buttons: '<< Back', 'Next >>', and 'Cancel'.

Figure 1-13 P.O.C. Specifications – Pump Dialog Box

P.O.C. Specifications – Pump Dialog Box Definitions

Option	Function
What is the rated flow?	Enter the flow rate in this edit field for the pump to be utilized. This number is typically stated in gpm (gallons per minute) in English units and in lpm (liters per minute) in metric units.
What is the pressure?	Type the rated pressure of the pump in this edit field. The manufacturer's rating should be used here. This value is listed in psi (pounds per square inch) in English units and bars in metric units.
Elevation change from pump to P.O.C.	In this edit field enter the total change in elevation between the pump and the point of connection. This value will allow for any pressure loss/gain due to elevation.

Water Meter**Figure 1-14 P.O.C. Specifications – Water Meter Dialog Box****P.O.C. Specifications – Water Meter Dialog Box Definitions**

Option	Function
Include a water meter for this P.O.C.	You have the option of having a meter included with your calculations. Simply click in the box to the left of the description. A check mark displays if this option is toggled on.
Size	Use this drop list to select the size of the meter to be installed. Choose from a wide selection of common sizes (e.g., 1", 1 ½"). You can add to or modify this list of sizes by selecting the Edit Equipment Database command from the Database menu.

Backflow Preventer

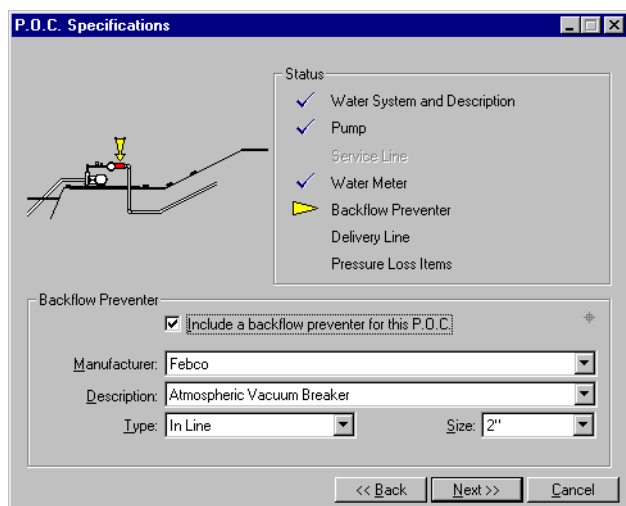
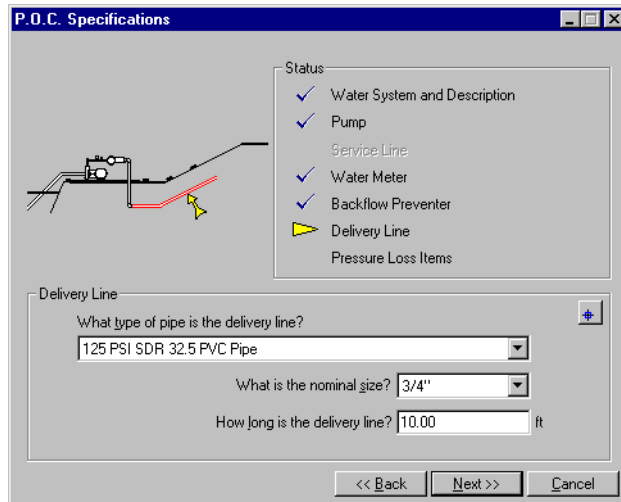


Figure 1-15 P.O.C. Specifications – Backflow Preventer Dialog Box

P.O.C. Specifications – Backflow Preventer Dialog Box Definitions

Option	Function
Include a backflow preventer for this P.O.C.	You have the option of having a backflow preventer included with your calculations. Simply click in the box to the left of the description. A check mark displays if this option is toggled on.
Manufacturer	Use this drop list to select the name brand of the backflow device to be installed. Choose from a predefined list of commonly used devices. You have the ability to modify the database to add any custom brands. The available sizes can be modified in the Backflow Preventer Database Editor dialog box. See <i>Backflow Preventer Database Editor</i> on page 139 for more information. To modify the Manufacturer listing, you can select the Backflow Preventers option from the Edit Equipment Database dialog box (Figure 9-11 on page 138). See <i>Edit Equipment Database</i> on page 138 for more information.
Description	Use this drop list to select the type of backflow preventer that you want to use. You are able to choose between a vacuum breaker and a reduced pressure model.
Type	The type of backflow device is displayed in this drop list. An example of this is "In Line."
Size	Use this drop list to select from a list of predefined sizes for the backflow preventer. The two most common sizes, 1" and 2", are listed.

Delivery Line



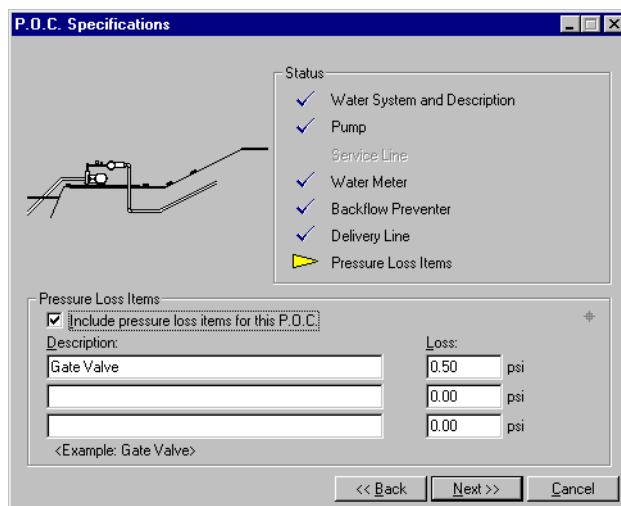
The dialog box is titled "P.O.C. Specifications". It features a schematic diagram of a water system on the left. On the right, a "Status" list shows the following items: "Water System and Description" (checked), "Pump" (checked), "Service Line" (unchecked), "Water Meter" (checked), "Backflow Preventer" (checked), "Delivery Line" (highlighted with a yellow arrow), and "Pressure Loss Items" (unchecked). Below this, the "Delivery Line" section contains three input fields: "What type of pipe is the delivery line?" with a dropdown menu showing "125 PSI SDR 32.5 PVC Pipe", "What is the nominal size?" with a dropdown menu showing "3/4\"", and "How long is the delivery line?" with a text field showing "10.00" ft. At the bottom are buttons for "<< Back", "Next >>", and "Cancel".

Figure 1-16 P.O.C. Specifications – Delivery Line Dialog Box

P.O.C. Specifications – Delivery Line Dialog Box Definitions

Option	Function
What type of pipe is the delivery line?	Use this drop list to select the type of pipe that was used in the placement of the delivery line. Select from an extensive database of pipe types. This can be modified to include any type of pipe desired in the Pipe Database Editor. See <i>Pipe Database Editor</i> on page 132 for more information.
What is the nominal size?	Use this drop list to select the size of the pipe that was used with the delivery line. You have the option of selecting any standard size pipe. The available sizes of pipe can be modified in the Pipe Database Editor.
How long is the delivery line?	Enter the length of the delivery line in this edit field.

Pressure Loss Items



The dialog box is titled "P.O.C. Specifications". It features a schematic diagram of a water system on the left. On the right, a "Status" list shows the following items: "Water System and Description" (checked), "Pump" (checked), "Service Line" (unchecked), "Water Meter" (checked), "Backflow Preventer" (checked), "Delivery Line" (checked), and "Pressure Loss Items" (highlighted with a yellow arrow). Below this, the "Pressure Loss Items" section contains a checked checkbox "Include pressure loss items for this P.O.C.". Underneath is a table with two columns: "Description:" and "Loss:". The first row has "Gate Valve" in the description and "0.50" in the loss field, with "psi" to the right. The second and third rows have empty description fields and "0.00" in the loss field, with "psi" to the right. Below the table is the text "<Example: Gate Valve>". At the bottom are buttons for "<< Back", "Next >>", and "Cancel".

Figure 1-17 P.O.C. Specifications – Pressure Loss Items Dialog Box

P.O.C. Specifications – Pressure Loss Items Dialog Box Definitions

Option	Function
Include pressure loss items for this P.O.C.	You have the option of selecting other items to be included in the water calculations. An excellent example of this is a gate valve. You have the option of adding up to three items for the pressure loss calculations.
Description	In this edit field, type the description of the device to be added.
Loss	In this edit field, type the amount of pressure loss that the added item creates in the system. These losses are commonly found in the manufacturer's specification sheets.

Point of Connection

Figure 1-18 Point of Connection Dialog Box

Point of Connection Dialog Box Definitions

Option	Icon	Function
P.O.C. Description		This edit field displays the description of the newly defined point of connection.
Label		This edit field displays the label of the newly defined point of connection. This label is what is placed into the drawing.
Flow Rate		This edit field displays the flow rate of the newly defined point of connection.
Pressure		This edit field displays the calculated working pressure of the point of connection.
Delivery Type		This drop list displays the delivery type of the point of connection.
Delivery Size		This drop list displays the delivery size of the point of connection.
Symbol Scale		You have the option of selecting the size of the symbol to be placed into the drawing. This is a user-definable option. Most commonly, the size of the point of connection is one-and-a-half to two times the size of the sprinkler head. This helps in identifying and being able to tell the difference between the sprinkler heads and the points of connection at a glance.
CAD Settings		The settings in the CAD Settings dialog box control the layer on which an item is placed, as well as the color, linetype, and width.
Text Properties		The settings in the Text CAD Settings dialog box control the layer on which the text is placed, as well as the color, style, text style, and height.

QuickSteps

1. Select P.O.C. → Wizard.


The P.O.C. Wizard dialog box (Figure 1-3 on page 2) displays.

2. Turn on the Let the wizard help you determine available water for P.O.C. radio button and click on OK.

The P.O.C. Specifications – Water System and Description dialog box (Figure 1-12 on page 10) displays.


3. **Enter a P.O.C. (point of connection) description, as well as a label. Select Pump for the type of water system and click on Next.**

The P.O.C Specifications – Pump dialog box (Figure 1-13 on page 10) displays.

 *The description for the P.O.C. can be as specific as the exact location, or generalized. The label is also user-definable.*


4. **Enter the pressure and flow rates at the pump, as well as the elevation change from the pump to the P.O.C., and click on Next.**

The P.O.C. Specifications – Water Meter dialog box (Figure 1-14 on page 11) displays.

 *The pressure and flow rate are pump-specific. By entering the elevation change, the software is able to account for the pressure loss/gain due to elevation.*


5. **Select the size of the water meter, if applicable, to be utilized. Click on Next after providing the desired information.**

The P.O.C. Specifications – Backflow Preventer dialog box (Figure 1-15 on page 12) displays.

 *The size of the meter selected assists the software in calculating the proper flow rate and pressure drop.*


6. **Select the backflow preventer to be used in this P.O.C. Select the size and manufacturer, as well as the type. Click on Next when complete.**

The P.O.C. Specifications – Delivery Line dialog box (Figure 1-16 on page 13) displays.

 *You may select from a database of backflow preventers provided with **Advanced Irrigation**. This database of manufacturers is customizable, so you have the ability to make any desired changes. See Backflow Preventer Database Editor on page 139 for more information.*


7. **Select the type and size of the delivery line, as well as the length, and click on Next.**

The P.O.C. Specifications – Pressure Loss Items dialog box (Figure 1-17 on page 13) displays.

 *You may select the pipe type and the size from a database of various pipe types. If the pipe type that you are utilizing is not present, you may add it through the Edit Pipe Database command. See Pipe Database Editor on page 132 for more information.*

8. **Add any items that you would like included in the pressure loss calculations. Enter the flow loss values (in psi or bars, depending on units) provided by either the manufacturer or your personal values. Click on Next when complete.**

The Point of Connection dialog box (Figure 1-18 on page 14) displays.

 *You may add any items that the software has not yet included. These values could be additional gate valves, etc.*

9. **Verify the information in the Point of Connection dialog box and click on Insert.**

You are prompted to select a location in the drawing in which to place the P.O.C. symbol.

10. **Graphically click where it is to be placed.**

The symbol is placed in the drawing. You are prompted to select a label insertion point.

11. **Click to select the location for the label.**

The label is placed in the drawing.

12. **Click on Close in the Point of Connection dialog box to end the command.**

Point of Connection

You have the option of bypassing the Wizard if you have the current flow rate and pressure information available. In the P.O.C. Wizard dialog box, select the option called I know my available water for P.O.C. and click on OK. The Point of Connection dialog box displays.

Figure 1-19 Point of Connection Dialog Box

Point of Connection Dialog Box Definitions

Option	Icon	Function
P.O.C. Description		This edit field displays the user-defined description of the point of connection. You can type a complete description of the point of connection.
Label		In this edit field, type a label for the point of connection. This label is what will be annotated in the drawing.
Flow Rate		In this edit field, type a flow rate for your newly defined point of connection.
Pressure		In this edit field, type a working pressure for the point of connection.
Delivery Type		Select from this drop list the type of pipe that was used in the placement of the delivery line. Select from an extensive database of pipe types. This can be modified to include any type of pipe desired in the Pipe Database Editor. See <i>Pipe Database Editor</i> on page 132 for more information.
Delivery Size		Select from this drop list the size of the pipe that was used with the delivery line. You have the option of selecting any standard size pipe. The available sizes of pipe can be modified in the Pipe Database Editor.
Symbol Scale		You have the option of selecting the size of the symbol to be placed into the drawing. This is a user-definable option. Most commonly, the size of the point of connection is one-and-a-half to two times the size of the sprinkler head. This helps in identifying and being able to tell the difference between the sprinkler heads and the points of connection at a glance.
CAD Settings		The settings in the CAD Settings dialog box control the layer on which an item is placed, as well as the color, linetype, and width.
Text Properties		The settings in the Text CAD Settings dialog box control the layer on which the text is placed, as well as the color, style, text style, and height.

QuickSteps

1. Select P.O.C. → Wizard.


The P.O.C. Wizard dialog box (Figure 1-3 on page 2) displays.

2. Turn on the I know my available water for P.O.C. radio button and click on OK.

The Point of Connection dialog box (above) displays.

3. Fill in data for the P.O.C. Description, Label, Flow Rate, Pressure, Delivery Type, Delivery Size, and Symbol Scale. Click on Insert when complete.

You are prompted to select an insertion point.

 Fill out the user-defined values in the applicable areas. Enter the Flow Rate as well as the Pressure. This information is critical, as it is used in the water calculations. The pipe types are listed from a database of pipe information that is customizable. See Pipe Database Editor on page 132 for more information.

4. Graphically select a point on the screen for insertion.

The symbol is inserted in the drawing. You are prompted to select a label insertion point.

5. Graphically select a point in the drawing for the label placement.

The label is placed in the drawing.

6. Click on Close in the Point of Connection dialog box to terminate the command.

Insert P.O.C.

ADVANCED IRRIGATION ➤ P.O.C. ➤ INSERT P.O.C.

KEY-IN COMMAND: ai poc

The Insert P.O.C. command offers user-definable options to insert the point. This is similar to the option of placing a Point of Connection in the Wizard but is a streamlined version of the command.

Point of Connection

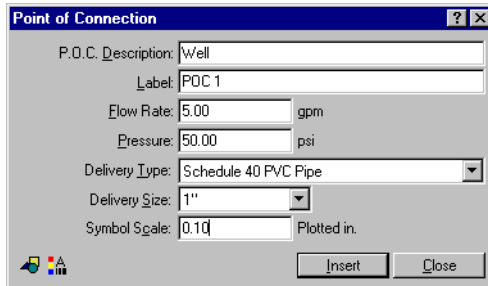



Figure 1-20 Point of Connection Dialog Box

QuickSteps

1. Select P.O.C. → Insert P.O.C.

The Point of Connection dialog box (above) displays.

2. Fill in the P.O.C. Description, Label, Flow Rate, Pressure, Delivery Type, Delivery Size, and the Symbol Scale values. Click on Insert when complete.

 This information is critical, as it is used in the water calculations. The pipe types are listed from a database of pipe information that is customizable. See Pipe Database Editor on page 132 for more information.

You are prompted to select an insertion point.

3. Graphically select an area in the drawing for insertion of the P.O.C.

The symbol is placed in the drawing. You are prompted to select a label insertion point.

4. Graphically select an area in the drawing for insertion of the label.
The label is placed in the drawing.
5. Click on Close in the Point of Connection dialog box to terminate the command.

P.O.C. Configuration

ADVANCED IRRIGATION ➤ P.O.C. ➤ CONFIGURATION

KEY-IN COMMAND: ai pocconfi g

The P.O.C. Configuration command in **Advanced Irrigation** allows you to set up information associated with the Locate P.O.C. command. Select from any defined points of connection or add a new one. If you choose to select a new P.O.C., the P.O.C. Wizard (Figure 1-3 on page 2) guides you step-by-step through the creation process.

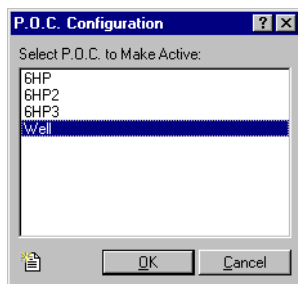



Figure 1-21 P.O.C. Configuration Dialog Box

P.O.C. Configuration Dialog Box Definitions

Option	Icon	Function
Select P.O.C. to Make Active		Select the point of connection that you want to make current. This incorporates all associated data from this P.O.C. and uses it for placement and editing.
Insert New P.O.C.		Click on the Insert New P.O.C. icon if you want to set up a new point of connection. This takes you to the P.O.C. Wizard and steps you through the process of creating a new point of connection.

Query P.O.C.

ADVANCED IRRIGATION ➤ P.O.C. ➤ QUERY

KEY-IN COMMAND: ai qpoc

The Query P.O.C. command allows you to view information associated with the selected P.O.C. When you select the P.O.C. to query, all the associated information displays. The description, flow rate,

pressure, pipe type, and pipe size are seen. This is very useful when validating the pressures and flow rates of water sources.

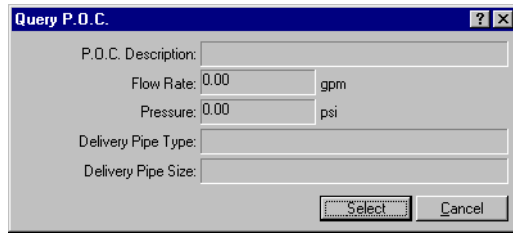


Figure 1-22 Query P.O.C. Dialog Box

Query P.O.C. Dialog Box Definitions

Option	Function
P.O.C. Description	This field displays the description of the selected P.O.C.
Flow Rate	This field displays the flow rate of the selected P.O.C.
Pressure	This field displays the pressure of the selected P.O.C.
Delivery Pipe Type	This field displays the delivery pipe type for the selected P.O.C.
Delivery Pipe Size	This field displays the delivery pipe size for the selected P.O.C.
Select	Clicking on Select lets you choose a P.O.C. in the drawing from which to extract information.
Cancel	Clicking on Cancel terminates the command.

QuickSteps

1. Select P.O.C. → Query.

The Query P.O.C. dialog box (above) displays.

2. Click on Select and select a P.O.C. in the drawing.

The information for the selected P.O.C. is displayed. This gives you an accurate account of any P.O.C. that has been inserted into the drawing. This allows you to double check areas of concern.

3. Click on Cancel to terminate the command.

SITE PREP



Figure 2-1 Site Prep Menu

In this chapter:

<i>Manage Surface Models</i>	22
<i>Change Contour Elevation</i>	34
<i>Triangulate Surface Model</i>	36
<i>Triangulate Surface Model from Contours</i>	38
<i>Preview Objects</i>	40
<i>Label Contours</i>	42
<i>Track Elevation</i>	44
<i>Change Elevation</i>	45
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<i>Locate Plant</i>	58

CHAPTER

2

Manage Surface Models

KEY-IN COMMAND: ai mngsurfmod

The Manage Surface Models command keeps track of, and provides access to, all the surface models that have been defined for each project. Each surface model may have its own set of contours, spot elevations, and rectangular grids. You might, for example, have one surface model to represent the original ground and another to represent the design surface. You can define up to 99 surface models per project.

Use the Manage Surface Models command to add a new surface model or modify, copy, delete, print, or query an existing surface model.

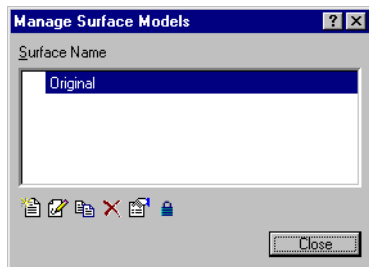


Figure 2-2 Manage Surface Models Dialog Box

Manage Surface Models Dialog Box Definitions

Option	Icon	Function
Surface Name		This box lists all the surface models created for this project.
New Surface Model		Click on the New Surface Model icon to add a surface model to the current project. Surface model parameters can be entered in the New Surface Model dialog box (Figure 2-3 on page 24). A surface model must be added before many commands, such as Triangulate Surface Model and Make Intermediate and Index Contour, can be executed. For more information, see <i>New Surface Model</i> on page 23.
Modify Surface Model		To change any of the parameters for a surface model already in the manager, highlight the model to modify and click on the Modify Surface Model icon. Parameters can be adjusted in the Modify Surface Model dialog box. For more information, see <i>Modify Surface Model</i> on page 32.
Copy Surface Model		To copy a surface model, highlight the model to copy and click on the Copy Surface Model icon. The Copy Surface Model dialog box (Figure 2-10 on page 33) displays. All files from the highlighted surface model are copied to the new surface model. For more information, see <i>Copy Surface Model</i> on page 32.
Delete Surface Model		To delete a surface model, highlight the model to be deleted and click on the Delete Surface Model icon. This deletes the files for that model. For more information, see <i>Delete Surface Model</i> on page 33.
Properties for Surface Model		If you want information about a specific surface model, highlight the model you want to query and click on the Properties for Surface Model icon. The Surface Model Properties dialog box (Figure 2-11 on page 34) displays. For more information, see <i>Surface Model Properties</i> on page 33.
Lock/Unlock Surface Model		Use this icon to toggle the lock status for the highlighted surface model. When a specific user locks a surface model, other users cannot edit it. A message displays, indicating that the modification cannot be made and identifying the user who locked the model. However, any user is capable of unlocking the surface model by highlighting it and selecting this option.


New Surface Model

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ NEW SURFACE MODEL



ICON:

The New Surface Model dialog box (Figure 2-3 on page 24) displays when you add a new surface model. It maintains parameters that control the surface model's triangulation, contours, elevation labels, and rectangular grid.

 *In **Advanced Irrigation**, you cannot place contours, elevation labels, or grids. These commands can be found in the **Surface Modeling** module.*

You can specify where the graphical output from **Surface Modeling** is drawn. The output from **Surface Modeling** can be drawn in the current file or in the CAD graphic of your choice. If you choose to output to an external CAD graphic, you may reference it into the current graphic. This allows you to have the triangles, contours, and grid display in another CAD graphic while helping to reduce the plan CAD graphic file size. When adding a new surface model, the triangulation parameters, contours, elevation labels, and rectangular grid options can be specified by clicking on the tab for these options.

The Surface Model Prototype Library (Figure 2-4 on page 25) allows you to establish prototype settings for creating surface models. All of the settings (including CAD settings) established on the Surface Model, Contours, Elevation Labels, and Rectangular Grid Tab pages are saved to a specified name in the library. With those settings written to the ...\\SUPPORT\\SM folder, other projects can use the prototypes established in any project. Creating prototypes for different kinds of models can save time when adding new models.

New Surface Model – Surface Model Tab

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ NEW SURFACE MODEL
⇨ SURFACE MODEL TAB

Set the parameters that are to be used during the creation of the surface model on the New Surface Model dialog box (Figure 2-3 on page 24).

The Surface Model Prototype Library icon next to the surface model Description edit field provides access to the Save To and Load Prototype functions. Use the Load Prototype button on the Surface Model Prototype Library dialog box to set all of the options and settings for new or existing surface models from previously defined prototypes. If you want to change a prototype to match the current surface model settings, click on the Save To button to overwrite your previous settings in a particular prototype.

For more information, refer to *Surface Model Prototype Library* on page 25.

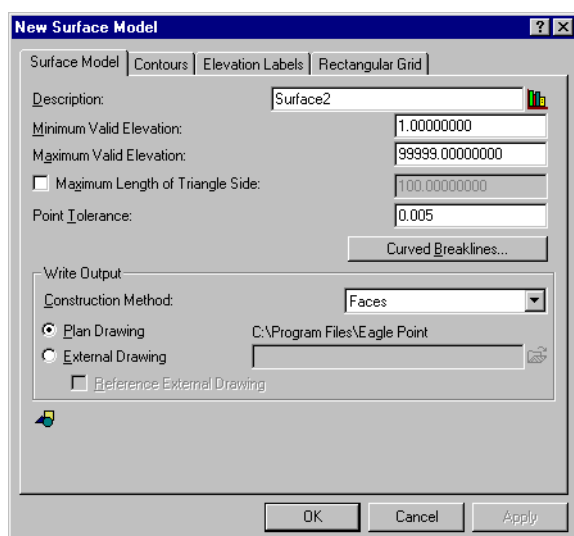






Figure 2-3 New Surface Model Dialog Box – Surface Model Tab

New Surface Model Dialog Box – Surface Model Tab Definitions

Option	Icon	Function
Description		This is the description that is used to create a new surface model. The information that is entered in this edit field can be alphanumeric. Press the Tab key after a description has been entered in this edit field.
Surface Model Prototype Library		The Surface Model Prototype Library icon next to the surface model Description edit field provides access to the Save To and Load Prototype commands. For more information, see <i>Surface Model Prototype Library</i> on page 25.
Minimum Valid Elevation		This value is the minimum valid elevation for objects used to create the surface model. If the program encounters any objects from a chosen selection set that are below this elevation, the objects are not included in the surface model.
Maximum Valid Elevation		This value is the maximum valid elevation for entities used to create the surface model. If the program encounters any objects from the chosen selection set that are above this elevation, the objects are not included in the surface model.
Maximum Length of Triangle Side		This option defines the maximum length of a triangle leg in a surface model. If a triangle leg is longer than the value specified, the system deletes that triangle from the surface model file.  <i>If you set the maximum triangle length to something other than zero, void areas may be generated by the surface model function.</i>
Point Tolerance		This value is the tolerance allowed for filtering out points in close proximity. If two points are not exactly at the same X, Y-coordinate, but are within a distance less than the tolerance specified, the program filters out the point at the lowest elevation during the surface model construction.
Curved Breaklines		This option provides a means to temporarily add vertices along a curve to improve the surface model quality. For more information, see <i>Curved Breaklines</i> on page 26.
Construction Method		Select the desired option to be used when you place triangles in your CAD graphic file. The available options are Faces and Eagle Point TIN in AutoCAD/IntelliCAD/ Eagle Point Graphics Engine , and Shapes and Surfaces in MicroStation.
Write Output Plan Drawing/ Design File		Select this option to construct the surface model triangles in the plan drawing/design file. This option is the default.
Write Output External Drawing/Design File		Select this option to construct the surface model triangles in another drawing/design file. Enter the path and drawing/design file name in the edit field, or click on the Select File icon to select a drawing/design file. This is the drawing/design file that the surface model triangles are placed into.

New Surface Model Dialog Box – Surface Model Tab Definitions

Option	Icon	Function
Reference External Drawing/Design File		Toggle on this option if you want to reference the external drawing/design file to the plan drawing/design file.
CAD Settings		Clicking on this icon allows you to set the parameters for the surface model triangles, such as color, layer/level, linetype/linestyle, and width/weight.

Surface Model Prototype Library

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ NEW SURFACE MODEL ⇨
SURFACE MODEL TAB ⇨ SURFACE MODEL PROTOTYPE LIBRARY

ICON: 

The Surface Model Prototype Library allows you to establish prototype settings for creating surface models. All of the settings (including CAD settings) established on the Surface Model, Contours, Elevation Labels, and Rectangular Grid tab pages are saved to a specified name in the library. Use the Load Prototype button on the Surface Model Prototype Library dialog box to set all of the options and settings for new or existing surface models from previously defined prototypes. If you want to change a prototype to match the current surface model settings, click on the Save To button to overwrite your previous settings in a particular prototype.

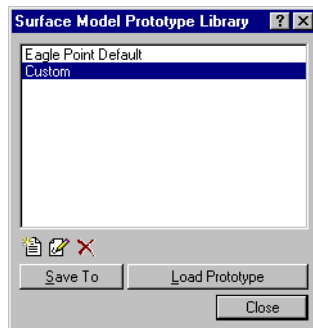





Figure 2-4 Surface Model Prototype Library Dialog Box

Surface Model Prototype Library Dialog Box Definitions

Option	Icon	Function
Prototype List		This list box displays all of the surface model prototypes that are available to use. This is a global list written to the ...SUPPORT\SM folder, so all projects can use the prototypes established in any one project.
New Surface Model Prototype		Click on this icon to create a new prototype from the current settings. Enter a name up to 30 characters long. Upon clicking on OK, the current settings from the Surface Model, Contours, Elevation Labels, and Rectangular Grid tab pages are saved to the name specified.
Modify Surface Model Prototype		Click on this icon to modify the name of the currently highlighted prototype. The current settings are not written to the prototype. To overwrite the settings for a prototype with the current settings, use the Save To button.
Delete Surface Model Prototype		Click on this icon to delete the currently highlighted prototype. You may not delete the Eagle Point Default prototype.
Save To		Use this button to save the current settings on the Surface Model, Contours, Elevation Labels, and Rectangular Grid tab pages to the currently highlighted prototype name. All previous settings for this prototype are overwritten.

Surface Model Prototype Library Dialog Box Definitions

Option	Icon	Function
Load Prototype		Use this button to set the settings on the Surface Model, Contours, Elevation Labels, and Rectangular Grid tab pages using the settings from the currently highlighted prototype. If a surface model has been triangulated, only the settings are modified and the surface model itself remains intact.

Curved Breaklines

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ NEW SURFACE MODEL ⇨
SURFACE MODEL TAB ⇨ CURVED BREAKLINES

The Curved Breaklines option enables you to control how arcs and curves are treated during the triangulation routine. Without setting any curved breakline parameters, the triangulation routine only uses the endpoints of the arc and subtends a breakline through the chord of the arc. For a more accurate representation of a breakline that curves, you may enter parameters that specify to add more segments of a certain length along the arc or curve during the triangulation process. This results in a better approximation of the breakline in the model. However, it does not modify the original breakline itself.

The table of arc lengths and length of segments is read when the surface model process encounters arcs and curves in the selection set. The lengths of the arcs or curves are then calculated and internally densified according to the length of segments specified within the table. The table is sorted in ascending order based on the arc/curve length, and establishes the ranges of the lengths of segments by using consecutive entries.

 Two different tables exist for English and metric unit projects.

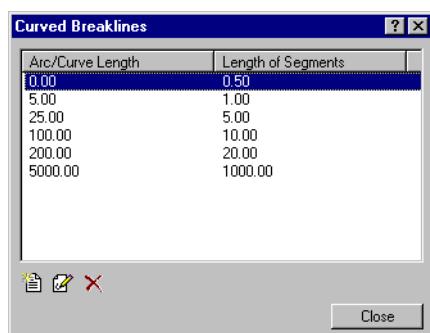





Figure 2-5 Curved Breaklines Dialog Box

Curved Breaklines Dialog Box Definitions

Option	Icon	Function
Arc/Curve Length		This column lists the length of an arc or curve to be densified with the corresponding length of segments.
Length of Segments		This column lists the length of the segment to be created for the curved breakline whose length is between the corresponding arc/curve length and the next arc/curve length in the table.
New Curved Breakline Parameter		Click on this icon to enter the Arc/Curve Length and the corresponding Length of Segments for new curved breakline parameters.
Modify Curved Breakline Parameter		Click on this icon to modify the highlighted Arc/Curve Length and the corresponding Length of Segments.
Delete Curved Breakline Parameter		Click on this icon to remove the highlighted Arc/Curve Length and the corresponding Length of Segments from the table.

Example

For this example, assume your Curved Breaklines table contains the following:


Arc/Curve Length	Length of Segments
0.0	0.5
5.0	1.0
20.0	2.0
50.0	5.0
500.0	10.0
1000.0	20.0

When triangulating a file with arcs/curves that are between zero and five feet, the resulting breakline would be made up of half-foot segments. When a 40-foot arc/curve is encountered, this table specifies that the resulting breakline approximates the arc/curve with two-foot segments. When an 800-foot arc/curve is found, ten-foot segments approximate it.

New Surface Model – Contours Tab

ADVANCED IRRIGATION ➤ SITE PREP ➤ MANAGE SURFACE MODELS ➤ NEW SURFACE MODEL
➤ CONTOURS TAB

The Contours tab on the New Surface Model dialog box (Figure 2-6 on page 28) allows you to specify the contour's intermediate interval, index interval, smoothing factor, polynomial factor, output location, and CAD settings.

 You cannot place contours in the drawing using **Advanced Irrigation**. You can set the settings here and place contours using the **Surface Modeling** module. See the **Surface Modeling** documentation for more information.

The Contour Smoothing Factor method generates smooth-looking contours and guarantees that there are no crossing contour lines. A value of zero indicates no smoothing. Larger values create smoother contours but increase the computing time and the size of the CAD graphic. A large number, such as 10, yields extremely smooth contours but produces large overhead. A small number, such as one, yields jagged but fast contours. Valid entries are 0-99. A smoothing factor in the upper range would be useful only for projects modeling surfaces other than the earth (e.g., machine parts). In most cases, a smoothing factor of four or higher produces the same contour lines. However, more vertices are placed on the line, thereby increasing the size of the CAD graphic considerably.

There are very few sites where one would want to use a smoothing factor higher than four. Only sites with extremely small relief (such as completely flat sites) benefit from a smoothing factor of five or six.

The benefit comes from smoother, more accurate contours. For a majority of real-world sites, smoothing factors of three or four yield as much smoothing as the site can have.

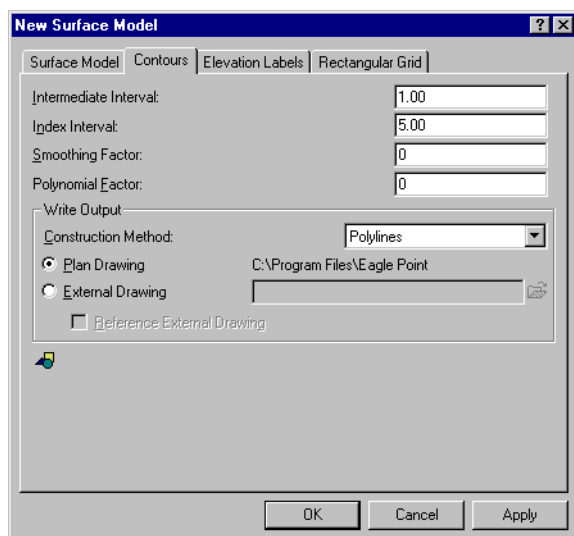




Figure 2-6 New Surface Model Dialog Box – Contours Tab


New Surface Model Dialog Box – Contours Tab Definitions

Option	Icon	Function
Intermediate Interval		This edit field allows you to specify the interval for the intermediate contours.
Index Interval		This edit field allows you to specify the interval for the index contours.
Smoothing Factor		Making contours with a smoothing factor provides more realistic contours by recognizing that the faces of the surface model triangles are not actually flat. The Smoothing Factor refines the contours to be more accurate by constructing sub-triangles inside the given triangle. The construction of triangles is a function of $(\text{Smoothing Factor} + 1)^2$. The Smoothing Factor represents the value entered in the edit field. The program uses this factor when it places elevation labels, as well as when it makes contours.
Polynomial Factor		This value is the number of vertices added between every two of the original contour vertices to represent this best fit curve. Polynomial smoothing is an optional procedure by which the vertices of each contour are applied to a curve fit. The nature of the polynomial curve equation does not guarantee that contours will not cross. A value of zero indicates no smoothing. Larger values create smoother contours, but increase the computing time and size of the CAD graphic. Note that the program uses this factor only when it makes contours.
Construction Method		Select the desired option to be used when you create contours. The available options are Polylines, Eagle Point Object, and LW Polylines. This option is only available in AutoCAD/IntelliCAD/ <i>Eagle Point Graphics Engine</i> .
Write Output Plan Drawing/ Design File		Select this option to construct contours in the plan drawing/design file upon making contours. This option is on by default.
Write Output External Drawing/Design File		Select this option to construct the contours in another drawing/design file. Enter the path and drawing/design file name in the edit field, or click on the Select File icon to select a drawing/design file that the contours will be placed into if any of the Make Contour commands are executed.
Reference External Drawing/Design File		Turn on this radio button if you want to reference the external drawing/design file to the plan drawing/design file.
CAD Settings		Click on this icon to set the parameters for the surface model contours, such as color, layer/level, linetype/linestyle, and width/weight.

New Surface Model – Elevation Labels Tab

ADVANCED IRRIGATION ➤ SITE PREP ➤ MANAGE SURFACE MODELS ➤ NEW SURFACE MODEL
➤ ELEVATION LABELS TAB

The Elevation Labels tab on the New Surface Model dialog box (below) allows you to specify the elevation label's X-interval, Y-interval, text rotation angle, and grid rotation angle.

 You cannot place elevation labels in the drawing using **Advanced Irrigation**. You can set the settings here and place elevation labels using the **Surface Modeling** module. See the **Surface Modeling** documentation for more information.

The text rotation angle is the angle at which the elevation labels are placed. An angle of 0 (zero) degrees is to the east. Positive angles are measured in a counterclockwise direction. The X- and Y-interval values are the specified unit spacing of the elevation labels in a grid pattern. Using a smaller value for the interval results in a denser grid. The grid rotation angle is the angle of the grid that the elevation labels are placed within.

The layer/level and color of the elevation label are determined by CAD settings.

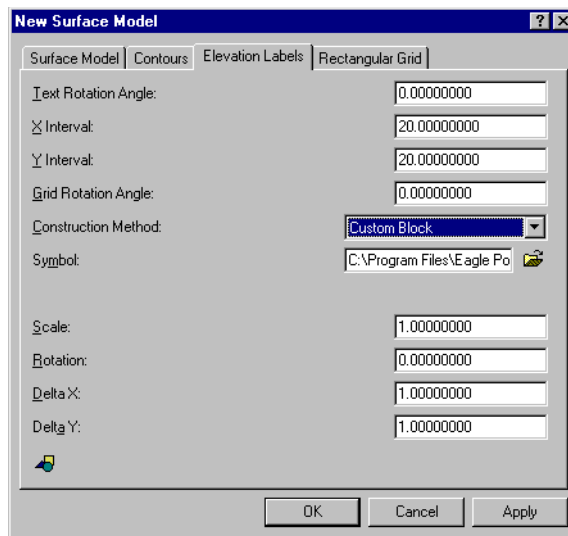




Figure 2-7 New Surface Model Dialog Box – Elevation Labels Tab

New Surface Model Dialog Box – Elevation Labels Tab Definitions

Option	Icon	Function
Text Rotation Angle		This option allows you to rotate the elevation labels. The angle of 0 (zero) degrees is to the east with positive angles measured in a counterclockwise direction.
X-Interval, Y-Interval		These values specify the size of the grid pattern from which elevation labels are constructed. Using a smaller value for the interval results in a denser grid of elevation labels.
Grid Rotation Angle		This option allows you to specify a rotation angle for the elevation labels grid construction instead of being parallel to the X-Y-axis. The angle you enter must be between, but not including, -360 and 360 degrees.
Construction Method		Select the desired option to be used when you place spot elevation labels. In AutoCAD/IntelliCAD/ Eagle Point Graphics Engine , the available options are Block, Eagle Point Object, and Custom Block. The Custom Block option allows you to specify your own block to use as the symbol for the elevation label. In MicroStation, you have the option of Cell or Custom Cell. Selecting the Custom option in either case allows you to specify the block/cell you want to use, as well as a scale factor, rotation angle, and Delta x and Delta y displacement of the elevation text.


New Surface Model Dialog Box – Elevation Labels Tab Definitions

Option	Icon	Function
Select Symbol		This option is enabled when the Construction Method option is set to Custom Block (or Custom Cell). Specify the block/cell that is used when placing elevation labels instead of the standard X symbol. Ensure that the path typed is included in the AutoCAD/IntelliCAD/ Eagle Point Graphics Engine search path. Click on the Select Symbol icon to display the Select Symbol dialog box.
Scale		Use this edit field to specify the scale factor by which you want to size your custom symbol. By default, the symbol is scaled by the plot scale.
Rotation		Use this edit field to specify the rotation angle that is used to place the custom symbol.
Delta X		This value is the displacement distance in feet (or meters) in the X-direction away from the insertion point of the block/cell.
Delta Y		This value is the displacement distance in feet (or meters) in the Y-direction away from the insertion point of the block/cell.
CAD Settings		Clicking on this icon allows you to set the parameters for the spot elevation labels, such as color and layer/level.

New Surface Model – Rectangular Grid Tab

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ NEW SURFACE MODEL
⇨ RECTANGULAR GRID TAB

The Rectangular Grid tab on the New Surface Model dialog box (Figure 2-8 on page 31) allows you to specify the rectangular grid's X-interval, Y-interval, vertical scale factor, longitudinal angle, and other rectangular grid settings.

 *You cannot place rectangular grids in the drawing using **Advanced Irrigation**. You can set the settings here and place the rectangular grid using the **Surface Modeling** module. See the **Surface Modeling** documentation for more information.*

The X- and Y-intervals specify the size of the grid squares. Using smaller values for the rectangular grid intervals results in denser grids and longer computing times.

The Vertical Scale Factor multiplies the Z-coordinate of the surface model by this factor and places the rectangular grid at the exaggerated elevations. This lets you exaggerate the vertical relief of the grid for relatively flat sites.

The Change Default Smoothing Factor option can be set to override the smoothing factor of the rectangular grid. If this option is toggled off, an infinite smoothing factor is used for the rectangular grid. If this option is toggled on, the smoothing factor specified in the edit field is used for the rectangular grid. For a more pronounced, rough terrain it may be more practical to display a grid that prominently defines all grade breaks by toggling this option on and entering a smoothing factor of 0 (zero).

The Longitudinal Angle determines the display of the grid pattern. The angle of the longitudinal lines is based on a due east reference as 0° and positive angles measured in the counterclockwise direction.

The Construction Method determines which type of object is placed when a rectangular grid is created. In AutoCAD/IntelliCAD/**Eagle Point Graphics Engine**, the construction method can be set to lines, faces, or Eagle Point Object. In MicroStation, the construction method can be set to Shapes or Surfaces. Generally, for the quickest results that use the least amount of drawing/design file space, use the Eagle Point Object option in AutoCAD/IntelliCAD/**Eagle Point Graphics Engine** and the Shapes option in MicroStation.

Display Transverse Lines and Grid Skirt are toggles for changing the appearance of how the grid is displayed. These options help you visualize the high and low points on a surface model, especially when the surface model is displayed in an isometric view.

Write Output allows data to be saved to external drawing/design files. This option may be used to prevent CAD graphics from becoming too large or unmanageable. If a grid is saved to an external CAD

graphic, all of the graphic data can be accessed through the Reference External Drawing/Design File option.

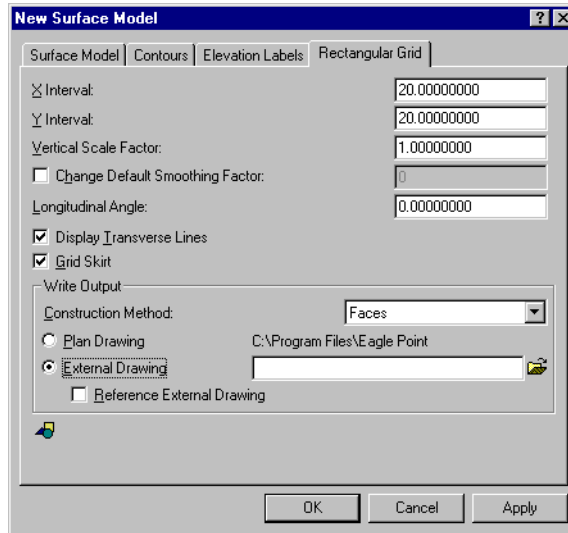




Figure 2-8 New Surface Model Dialog Box – Rectangular Grid Tab

New Surface Model Dialog Box – Rectangular Grid Tab Definitions

Option	Icon	Function
X-Interval, Y-Interval		These values specify the size of the grid squares used to construct the rectangular grid. Smaller values result in denser grids, larger computing times, and larger CAD graphic files.
Vertical Scale Factor		This value is multiplied to the Z-coordinates of the surface model. The rectangular grid is then placed at the exaggerated elevations. This allows the vertical relief of the grid for relatively flat sites to be exaggerated.
Change Default Smoothing Factor		<p>This toggle allows the grid to be constructed using a specified smoothing factor. Like the contours, a smoothing factor can be set for a grid to enhance the display of a surface model. The smoothing factor refines the grid to be more accurate by constructing sub-triangles inside the given surface model triangle.</p> <p>The construction of triangles is a function of $(\text{Smoothing Factor} + 1)^2$. The smoothing factor represents the value entered in the edit field. If this option is toggled off, an infinite smoothing factor is used for the rectangular grid.</p>
Longitudinal Angle		This option allows you to construct the grid lines at a specified angle, rather than parallel to the X and Y-axes. Valid angle values are between, but not including, -360 and 360 degrees.
Display Transverse Lines		Toggle on this option if you want to display the transverse and longitudinal lines when the grid is made. Turn off this toggle if you want to display only the longitudinal lines and produce a grid with rows, not grid squares. If the Longitudinal Angle field has a value of 90, the system displays only the transverse lines. The X-interval controls transverse lines and the Y-interval controls longitudinal lines.
Grid Skirt		Toggle on this option to place a skirt on the rectangular grid. Use this toggle to turn the Grid Skirt off/on. The Grid Skirt finds the lowest point on the model and then extends that elevation to the outer boundary of the model. Once the outer boundary has been found, the skirt then stretches vertically until it ties in with the elevation at that particular location. This option could best be described using the analogy of a tablecloth that drapes over the sides of a table.
Construction Method		Select the desired option to be used when you create a rectangular grid. The available options are Lines, Faces, and Eagle Point Object in AutoCAD/IntelliCAD/ Eagle Point Graphics Engine , and Shapes and Surfaces in MicroStation.
Write Output Plan Drawing/ Design File		Select this option to construct the grid in the plan drawing/design file upon making a grid. This option is on by default.

New Surface Model Dialog Box – Rectangular Grid Tab Definitions

Option	Icon	Function
Write Output External Drawing/Design File		Select this option to construct the rectangular grid in another drawing/design file. Enter the path and drawing/design file in the edit field, or click on the Select File icon to select a drawing/design file into which the rectangular grid is placed.
Reference External Drawing/Design File		Toggle on this option if you want to reference the external drawing/design file to the plan drawing/design file.
CAD Settings		Clicking on this icon allows you to set the parameters for the rectangular grid, such as color and layer/level.

Modify Surface Model

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ MODIFY SURFACE MODEL

ICON: 

The Modify Surface Model command allows you to change any of the parameters for an existing surface model. In the Manage Surface Models dialog box, highlight the surface model that you want to modify and click on the Modify Surface Model icon. Parameters can be adjusted in the Modify Surface Model dialog box.

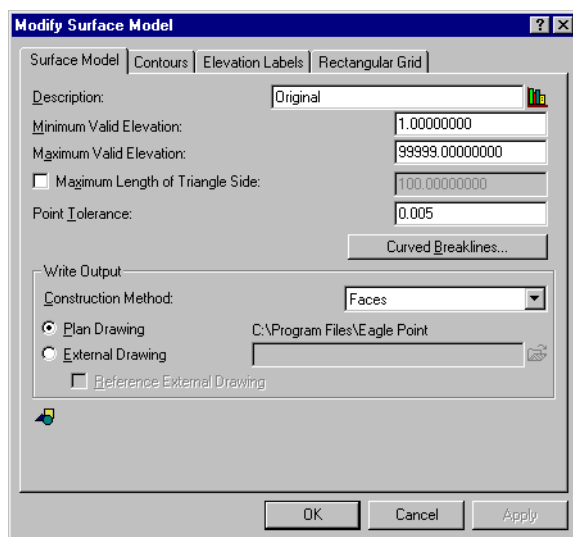


Figure 2-9 Modify Surface Model Dialog Box

Copy Surface Model

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ MANAGE SURFACE MODELS ⇨ COPY SURFACE MODEL

ICON: 

The Copy Surface Model command allows you to create a new surface model by duplicating the triangle information from an existing surface model. This option can be used for parallel subsurfaces

that are at a constant depth from the overlying surface. Surface models may also be copied while raising or lowering the elevation of the entire model.

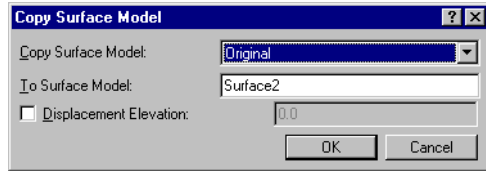


Figure 2-10 Copy Surface Model Dialog Box

Copy Surface Model Dialog Box Definitions

Option	Function
Copy Surface Model	Select from the drop list the existing surface model that is to be copied.
To Surface Model	Type the name of the surface model that is to be created. The text entered in this edit field is the description given to the new surface model as it displays in the Manage Surface Models dialog box (Figure 2-2 on page 22).
Displacement Elevation	Toggle on this option to copy an existing surface model to a specified displacement up or down from its existing elevation. If a negative value is entered in this field, the surface model is lowered. Conversely, if the value entered is positive, the surface model is raised.

Delete Surface Model

ADVANCED IRRIGATION ➤ SITE PREP ➤ MANAGE SURFACE MODELS ➤ DELETE SURFACE MODEL




The Delete Surface Model command allows you to delete a surface model and all associated data files from the Manage Surface Models dialog box (Figure 2-2 on page 22). Deleting a surface model from the Manage Surface Models dialog box does not delete the triangle objects that are in the CAD graphic. All of the surface model's data used for the construction of contours, elevation labels, and rectangular grids will be erased from the project when this command is executed.

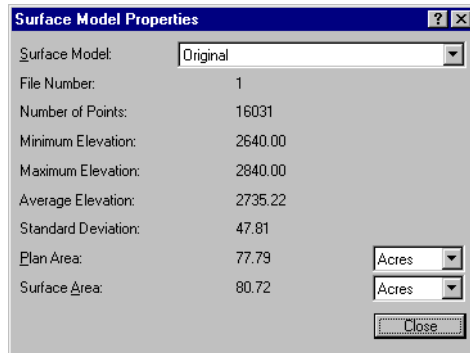
Surface Model Properties

ADVANCED IRRIGATION ➤ SITE PREP ➤ MANAGE SURFACE MODELS ➤ PROPERTIES FOR SURFACE MODEL



The Surface Model Properties command allows you to view information about a surface model. The information that you can view includes the file number, number of points, minimum, maximum, and average elevation, standard deviation, and plan and surface area. The information that is displayed is for the surface model selected in the drop list.

 Use the information in the Surface Model Properties dialog box to verify that the surface model was created properly.



The dialog box titled "Surface Model Properties" contains the following fields and values:

Property	Value
Surface Model:	Original
File Number:	1
Number of Points:	16031
Minimum Elevation:	2640.00
Maximum Elevation:	2840.00
Average Elevation:	2735.22
Standard Deviation:	47.81
Plan Area:	77.79
Surface Area:	80.72

Units for Plan Area and Surface Area are set to "Acres". A "Close" button is at the bottom right.

Figure 2-11 Surface Model Properties Dialog Box

Surface Model Properties Dialog Box Definitions


Option	Function
Surface Model	Select a surface model from the drop list for which to view the properties.
File Number	This value is the number associated with the surface model file as it appears in the Manage Surface Models dialog box (Figure 2-2 on page 22).
Number of Points	This value is the total number of points that were used for the surface model construction.
Minimum Elevation	This value is the elevation of the lowest triangle vertex within the surface model file.
Maximum Elevation	This value is the elevation of the highest triangle vertex within the surface model file.
Average Elevation	This value is the average elevation of all points used for surface model construction.
Standard Deviation	This value is the standard deviation of the data used for the surface model.
Plan Area	This value is the calculated planar area of the surface model. This value may be displayed in square feet or acres in an English project and square meters or hectares in a metric project.
Surface Area	This value is the calculated surface area of the 3-D surface model. This value may be displayed in square feet or acres in an English project and square meters or hectares in a metric project.

Change Contour Elevation

ADVANCED IRRIGATION ➤ SITE PREP ➤ CHANGE CONTOUR ELEVATION

KEY-IN COMMAND: ai contel ev

The Change Contour Elevation command changes the elevation of the contours that are selected. This allows you to enter a starting elevation and an increment elevation. All of the contours that you draw a line through will have their elevations changed. Use this command to convert 2-D contour maps to 3-D.

-  If you enter a positive increment elevation, the elevation is added to the previous elevation. If you enter a negative increment elevation, the elevation is subtracted from the previous contour elevation.

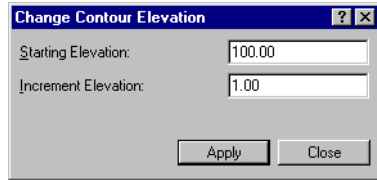


Figure 2-12 Change Contour Elevation Dialog Box

Change Contour Elevation Dialog Box Definitions

Option	Function
Starting Elevation	This value is the elevation of the first contour through which the line is drawn.
Increment Elevation	This value determines the elevation difference from the current contour being changed to the next contour. Enter a positive value to add the increment elevation to the previous contour, or a negative value to subtract the increment elevation from the previous contour.

QuickSteps

To change the elevation of contours, complete the following steps.

1. Select Site Prep → Change Contour Elevation.

The Change Contour Elevation dialog box (above) displays.

2. Enter the Starting Elevation for the first contour line.

3. Enter the Increment Elevation for each of the following contours. Enter a positive value to add the increment elevation to the previous contour or a negative value to subtract from the previous contour.

4. Click on Apply.

You are prompted:

Select a point:

5. Graphically select the first point.

You are prompted:

Select a point:

6. Graphically select the second point.

The elevations of all of the contour lines that are between the first and second point selected are changed.

The first contour that is crossed is changed to the starting elevation. Each contour crossed after that has its elevation incremented from the previous contour.

7. Click on Close to end the command.

Triangulate Surface Model

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ SURFACE MODEL

KEY-IN COMMAND: ai surfmod

The Triangulate Surface Model command creates a surface model of selected objects such as points, lines, arcs, shapes, and blocks/cells. Only the objects that reside within the specified minimum and maximum valid elevation range are used when creating the surface model.

- It is recommended that you place the minimum elevation for the surface model to 1 or higher so that objects at invalid elevations (e.g., 0) are not used. Placing minimum and maximum elevations five to ten units from the valid elevations limits the possibility of using invalid objects.*
- If you are creating a surface model from contours, it is recommended that you use the Surface Model from Contours command so that flat triangle correction is applied to your site. For more information, see Triangulate Surface Model from Contours on page 38.*

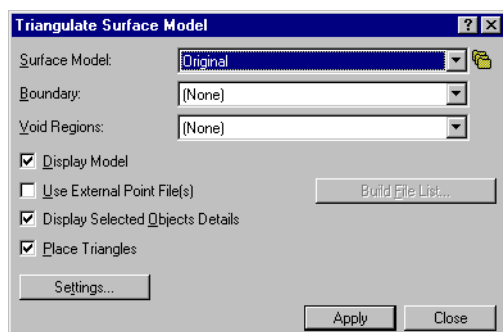



Figure 2-13 Triangulate Surface Model Dialog Box

Triangulate Surface Model Dialog Box Definitions

Option	Icon	Function
Surface Model		Select the name of the surface model that you want to create from the drop list. You can also click on the Manage Surface Models icon to the right of the drop list to access the Manage Surface Models dialog box (Figure 2-2 on page 22). This dialog box provides options to add, modify, copy, delete, or summarize a surface model.
Boundary		This option allows you to specify whether you want to use a boundary. Your options are to not use a boundary (default), use a predefined boundary, or graphically select a closed object to define a boundary while creating a surface model.
Void Regions		This option allows you to specify whether you want to use a void region. Your options are to not use a void region (default), use a predefined void region, or graphically select closed objects to define void regions while creating a surface model.
Display Model		This option displays the surface model triangles in the CAD graphic as temporary objects after the surface model is created. As soon as a redraw is performed, the triangles disappear.
Use External Point File(s)		This option allows you to select an ASCII point file or External Node Database as points to create the surface model. This allows you to create a surface model from points that are not in your CAD graphic. You are still able to select objects that are in your CAD graphic when creating the surface model.
Build File List		This option allows you to maintain a list of external files from which the surface model is created. You can select an ASCII point file or an External Node Database. This option is enabled when the Use External Point File(s) option is toggled on.

Triangulate Surface Model Dialog Box Definitions

Option	Icon	Function
Display Selected Objects' Details		This option provides information on the type of objects selected and how many have been selected for the surface model that you are creating. It lists the number of points used and where the points came from: either the Graphics, External Node Database, or ASCII file. This report also tells you the minimum and maximum elevations used from each source and the number of ASCII files that were used to create the surface model.
Place Triangles		Toggle on this option if you want to place the surface model triangles into the CAD graphic file after the surface model is created.
Settings		Clicking on this button displays the Surface Model Settings dialog box, which provides options that allow you to change any of the surface model parameters before you create the surface model. These settings can also be set when adding a new surface model to the Manager when you select Site Prep → Manage Surface Models → New Surface Model. These settings affect how the surface model is created, such as minimum and maximum elevation, point tolerance, curved breaklines, and output.

QuickSteps

To create a surface model, complete the following steps.

1. Select Site Prep → Surface Model.

The Triangulate Surface Model dialog box (Figure 2-13 on page 36) displays.



2. Specify an original surface by selecting it from the drop list. If there is no surface model in the drop list or if you want to modify a surface model in the list, click on the Manage Surface Models icon. Click on Close when you are finished in the Manage Surface Models dialog box (Figure 2-2 on page 22).

3. Select the appropriate Boundary option to use. Set the drop list to None to create a surface model without a boundary, Select to select a closed object when creating the surface model, or Predefined to use a predefined boundary when creating the surface model.

4. Select the appropriate Void Regions option to use. Set the drop list to None to create a surface model without a void region, Select to select a closed object as a void region when creating the surface model, or Predefined to use a predefined void region when creating the surface model.

5. To temporarily display the surface model that has been created, toggle on the Display Model option.

6. To use external points when creating the surface model, toggle on the Use External Point File(s) option.

7. To display information about the objects that are being used to create the surface model, toggle on the Display Selected Objects' Details option.

8. To place the triangles of the surface model into the CAD graphic file after the surface model is created, toggle on the Place Triangles option.

9. To change any of the settings for the surface model, click on the Settings button.

10. Click on Apply to create the surface model.

A. In AutoCAD/IntelliCAD/Eagle Point Graphics Engine, you are prompted:

Select objects:

Graphically select the desired objects and press Enter when you are finished selecting objects.

Review the information in the Display Selected Objects Details dialog box, and if satisfactory, click on OK to continue or on Cancel to stop the command. When OK is clicked on, the surface model is triangulated.

B. In MicroStation, you are prompted:

Accept Fence Contents

Select a data point to accept the fence contents.

You must have a fence placed to create a surface model in MicroStation.


11. If you have set the Boundary option to Select, graphically select the boundary. In MicroStation, accept the selection of the boundary.
12. If you have set the Void Regions option to Select, graphically select the desired void regions. Press the Enter key in AutoCAD/IntelliCAD/Eagle Point Graphics Engine or the Reset button on your pointing device in MicroStation when you are finished selecting void regions.
13. Click on Close to end the command.

Triangulate Surface Model from Contours

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ SURFACE MODEL FROM CONTOURS

KEY-IN COMMAND: ai surfmodcont

The Triangulate Surface Model from Contours command optimizes creating surface models from contour maps. The command provides a more reliable means of fixing flat triangles created in elbow-like contours. Intersection points are calculated down the elbow and the elevations are interpolated for these points.

 When creating a surface model from contours, the program runs a check for flat triangles. The flat triangle correction prevents the system from making triangles whose vertices have the same elevation.

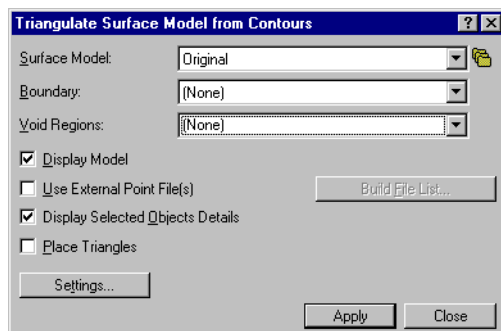



Figure 2-14 Triangulate Surface Model from Contours Dialog Box

Triangulate Surface Model from Contours Dialog Box Definitions

Option	Icon	Function
Surface Model		Select the name of the surface model that you want to create from the drop list. You can also click on the Manage Surface Models icon to the right of the drop list to access the Manage Surface Models dialog box (Figure 2-2 on page 22). This dialog box provides options for you to add, modify, copy, delete, or summarize a surface model.
Boundary		This option allows you to specify whether you want to use a boundary. Your options are to not use a boundary (default), use a predefined boundary, or graphically select a closed object to define a boundary while creating a surface model.
Void Regions		This option allows you to specify whether you want to use a void region. Your options are to not use a void region (default), use a predefined void region, or graphically select closed objects to define void regions while creating a surface model.

Triangulate Surface Model from Contours Dialog Box Definitions

Option	Icon	Function
Display Model		This option displays the surface model triangles in the CAD graphic as temporary objects after the surface model is created. As soon as a redraw is performed, the triangles disappear.
Use External Point File(s)		This option allows you to select an ASCII point file or External Node Database as points to create the surface model. This allows you to create a surface model from points that are not in your CAD graphic. You are still able to select objects that are in your CAD graphic when creating the surface model.
Build File List		This option allows you to maintain a list of external files from which the surface model is created. You can select an ASCII point file or an External Node Database. This option is enabled when the Use External Point File(s) option is toggled on.
Display Selected Objects' Details		This option provides information on the type of objects selected and how many have been selected for the surface model that you are creating. It lists the number of points used and where the points came from: the Graphics, External Node Database, or ASCII point file. This report also tells you the minimum and maximum elevations used from each source and the number of ASCII point files that were used to create the surface model.
Place Triangles		Toggle on this option if you want to place the surface model triangles into the CAD graphic file after the surface model is created.
Settings		Clicking on this button displays the Surface Model Settings dialog box, which provides options that allow you to change any of the surface model parameters before you create the surface model. These settings can also be set when adding a new surface model to the Manager when you select Site Prep → Manage Surface Models → New Surface Model. These settings affect how the surface model is created, such as minimum and maximum elevation, point tolerance, curved breaklines, and output.

QuickSteps

To create a surface model from contours, complete the following steps.

- 1. Select Site Prep → Surface Model from Contours.**

The Triangulate Surface Model from Contours dialog box (Figure 2-14 on page 38) displays.



- 2. Specify an original surface by selecting it from the Surface Model drop list.**

If there is no surface model in the drop list, or if you want to modify a surface model in the list, click on the Manage Surface Models icon. Click on Close in the Manage Surface Models dialog box (Figure 2-2 on page 22) when you are finished selecting the surface model.

- 3. Select the appropriate Boundary option to use. Set the drop list to None to create a surface model without a boundary, Select to select a closed object when creating the surface model, or Predefined to use a predefined boundary when creating the surface model.**

- 4. Select the appropriate Void Regions option to use. Set the drop list to None to create a surface model without a void region, Select to select a closed object as a void region when creating the surface model, or Predefined to use a predefined void region when creating the surface model.**

- 5. To display the surface model that has been created, toggle on the Display Model option.**

- 6. To use external points when creating the surface model, toggle on the Use External Point File(s) option.**

- 7. To display information about the objects that are being used to create the surface model, toggle on the Display Selected Objects' Details option.**

- 8. To place the triangles of the surface model into the CAD graphic file after the surface model is created, toggle on the Place Triangles option.**

- 9. To change any of the settings for the surface model, click on the Settings button.**

- 10. Click on Apply to create the surface model.**

A. In AutoCAD/IntelliCAD/Eagle Point Graphics Engine, you are prompted:

Select objects:

Graphically select the desired objects and press Enter when you are finished selecting objects.

Review the information in the Display Selected Objects' Details dialog box. If the information is acceptable, click on OK to continue. Click on Cancel to stop the command. The surface model is created when you click on OK.

B. In MicroStation, you are prompted:

Accept fence contents.

Select a data point to accept the fence contents.

You must have a fence placed to create a surface model in MicroStation.

11. If you have set the Boundary option to Select, graphically select the boundary. In MicroStation, accept the selection of the boundary.
12. If you have set the Void Regions option to Select, graphically select the desired void regions. Press the Enter key in AutoCAD/IntelliCAD/Eagle Point Graphics Engine or the Reset button on your pointing device in MicroStation when you are finished selecting void regions.
13. Click on Close to end the command.

Preview Objects

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ PREVIEW CONTOURS

KEY-IN COMMAND: ai preview

The Preview Objects command allows you to see the contours without having CAD loaded. These contours are generated in an Open GL preview window. You can preview the contours for any surface model that has been created.

By being able to preview the contours without a CAD package, you can determine if the contours of the site are acceptable before going back to the office.

If you have noticed that you need to collect more survey data for the site, you can do so while you are still at the job site.

The preview dialog box allows you to pan, zoom, and rotate your view orientation on the contours.

For more information on viewing the contours, refer to *Preview Object* in the **Eagle Point Menu** manual.

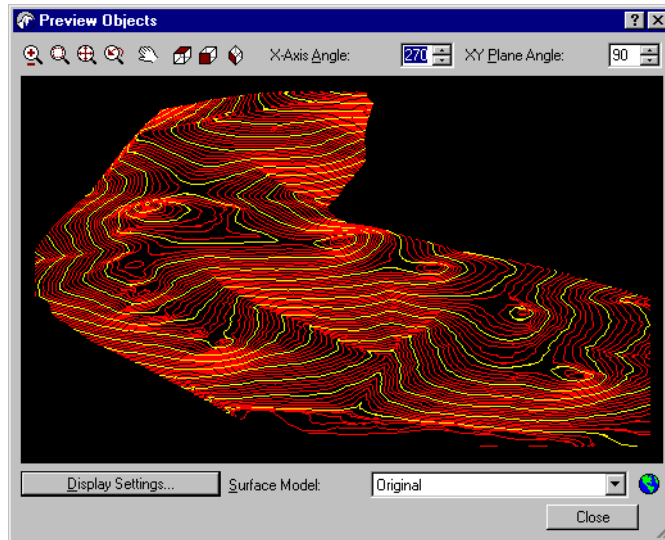



Figure 2-15 Preview Objects Dialog Box

Preview Objects Dialog Box Definitions

Option	Icon	Function
View Commands		The icons across the top of the dialog box control the viewing perspective of the contour map. You can zoom, pan, and change the view rotation using these commands. Refer to the <i>Preview Object</i> command in the Eagle Point Menu manual for more information.
Display Settings		This command allows you to specify which type of contours are on (Index or Intermediate), as well as the zoom ratio, pan factor, and view type for the objects. The view types that can be chosen are Wireframe, Constant Shading, and Hidden Surface Removal. For more information on the display settings, see <i>Preview Object Display Settings</i> in the Eagle Point Menu manual.
Surface Model		Select the surface model for which to create contours by selecting it from this drop list. The All Surface Models icon allows you to select a surface model from a different project.

QuickSteps

To preview contours, complete the following steps.

1. Select Site Prep → Preview Contours.

This displays the Preview Objects dialog box (above).



2. Specify the surface model to preview by selecting it from the Surface Model drop list.

You can also select a surface model from a different project by clicking on the All Surface Models icon.

This displays a preview of the contours for the surface model that is selected in the drop list.

Label Contours

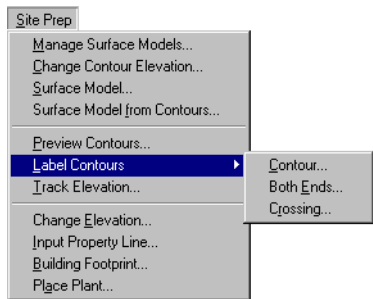


Figure 2-16 Label Contours Submenu

The Label Contours commands provide you with several options for automatically placing elevation labels on contours in your drawing.

Label Contours

KEY-IN COMMAND: ai l label cont

The Label Contours command automatically labels contours with their elevations. Contour lines are broken at the selected point and the elevation label is placed at the break.

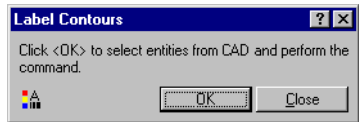


Figure 2-17 Label Contours Dialog Box

Label Contours Dialog Box Definition

Option	Icon	Function
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

QuickSteps

- Select Site Prep ➔ Label Contours ➔ Contour.**
The Label Contours dialog box (above) displays.
- Click on OK.**
You are prompted:
Select Starting Point.
- Click on the contour to be labeled.**
Labeling is applied to the selected contour.
- Click on Close to end the command.**

Label Both Ends

ADVANCED IRRIGATION ➤ SITE PREP ➤ LABEL CONTOURS ➤ BOTH ENDS

KEY-IN COMMAND: ai label both

The Label Both Ends command automatically labels both ends of contours that are not closed.

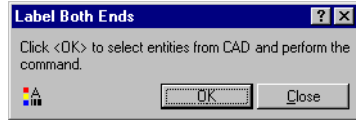



Figure 2-18 Label Both Ends Dialog Box

Label Both Ends Dialog Box Definition

Option	Icon	Function
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

QuickSteps

- Select Site Prep → Label Contours → Both Ends.**
The Label Both Ends dialog box (above) displays.
- Click on OK.**
You are prompted:
Select objects:
- Select the desired objects and press Enter when finished.**
The selected contours are labeled at both ends.
- Click on Close to end the command.**

Label Crossing

ADVANCED IRRIGATION ➤ SITE PREP ➤ LABEL CONTOURS ➤ CROSSING


KEY-IN COMMAND: ai label cross

The Label Crossing command automatically labels contours with their elevations. Contour lines are broken at every point where they intersect with the specified line and the elevation label is placed at the break.



Figure 2-19 Label Crossing Dialog Box

Label Crossing Dialog Box Definition

Option	Icon	Function
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

QuickSteps

1. Select Site Prep → Label Contours → Crossing.

The Label Crossing dialog box (Figure 2-19 on page 43) displays.

2. Click on OK.

You are prompted:

Select Starting Point.

3. Select a starting point in the drawing.

You are prompted:

Select End Point

4. Select an end point in the drawing.

Elevation labels are placed at the line breaks between the designated starting and end points.

5. Click on Close to end the command.

Track Elevation

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ TRACK ELEVATION

KEY-IN COMMAND: ai trackel ev

The Track Elevation command displays the Northing (Y), Easting (X), and Elevation (Z) coordinates for the surface model selected. These are the coordinates of the crosshairs as they are moved across the screen. If your cursor is no longer on the surface model, then the elevation value will no longer be displayed.

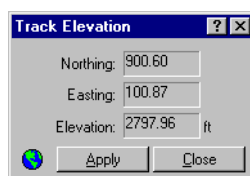



Figure 2-20 Track Elevation Dialog Box

Track Elevation Dialog Box Definitions

Option	Icon	Function
Northing		This field displays the Y-coordinate value for the surface model selected, based on the location of the cursor.
Easting		This field displays the X-coordinate value for the surface model selected, based on the location of the cursor.
Elevation		The current elevation of the selected surface model is displayed in this field. This value differs, based on the location of the cursor in the drawing, as well as the surface model itself.

Track Elevation Dialog Box Definitions

Option	Icon	Function
Active Surface Model Settings		Clicking on this icon displays the Active Surface Model dialog box. The Surface Model drop list displays a list of surface models from which to choose when selecting a model to use for calculations. When you click on the All Surface Models icon in this dialog box, you can browse to the location of other defined surface models.

QuickSteps

1. **Select Site Prep → Track Elevation.**

The Track Elevation dialog box (Figure 2-20 on page 44) displays.



2. **Click on the Active Surface Model Settings icon.**

The Active Surface Model dialog box displays.

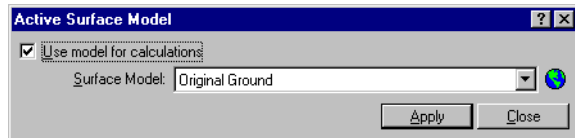


Figure 2-21 Active Surface Model Dialog Box



3. **Select the desired surface model from the Surface Model drop list or click on the All Surface Models icon to access other defined surface models.**

4. **Click on Apply in the Active Surface Model dialog box.**

5. **Click on Apply in the Track Elevation dialog box.**

Notice that as you move the cursor over the surface model, the Northing, Easting, and Elevation values update accordingly.

6. **Click the left mouse button on the desired spot in the surface model and the exact elevation is displayed.**

7. **Click on Close to end the command.**

Change Elevation

ADVANCED IRRIGATION → SITE PREP → CHANGE ELEVATION



KEY-IN COMMAND: `bpchangeel evati on`

The Change Elevation command lets you quickly change the elevations of elements in your CAD graphic.



Figure 2-22 Change Elevation Dialog Box

Change Elevation Dialog Box Definitions

Option	Icon	Function
Selection Masks		Toggle on the items in the Selection Masks group that you would like to modify.
New Elevation		Enter the proposed elevation value to which to move the selected items.
Display Settings		Display settings are located in the lower left-hand corner of the dialog box.
		When the setting in the left column is toggled on, all Selection Masks options are selected.
		When the setting on the right side of the column is toggled on, all Selection Masks options are cleared.

QuickSteps

1. Select Site Prep → Change Elevation.

The Change Elevation dialog box (Figure 2-22 on page 45) displays.

2. Toggle on the items that you would like to change in the Selection Masks group.

3. Enter the new elevation of the selected items in the New Elevation edit field.

4. Click on OK.

You are prompted:

Select objects:

5. Select the objects that you want to change the elevation for.

6. Press Enter to complete the operation.

The elevation change is applied.

7. Click on Close to dismiss the Change Elevation dialog box.


Input Property Line

ADVANCED IRRIGATION ⇨ SITE PREP ⇨ INPUT PROPERTY LINE

KEY-IN COMMAND: ai propl i ne

 You must be in an edit field to utilize the PIC icon to select points in your CAD graphic.

The Input Property Line command allows you to lay out a property line using several of the most common notations found on blueprints or other documents from surveyors and engineers. Several examples include bearing and distance (N38 14' 12"E), azimuth and distance, pick points, turned angles, and coordinates. When you type the appropriate values for the starting point, the corresponding dialog box displays. These dialog boxes include: Backsight, Coordinates, Bearing Distance, Azimuth Distance, Curves, and Turned Angle.

 This command can also be used to locate existing elements on the site by selecting Sideshot mode and toggling off Draw Lines. In this case, a Node is placed at the location. You can then insert a symbol and snap to the Node.



The Property Line Settings command allows you to establish label and Node settings. You can access the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47) by clicking on the Property Line Settings icon in any of the Input Property Line dialog boxes.

Input Property Line Methods

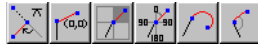


Figure 2-23 Input Property Line Methods

Input Property Line Methods

Option	Icon	Function
Backsight		Click on the Backsight icon to display the Input Property Line – Backsight dialog box (Figure 2-26 on page 49). This option allows you to calculate an angle of a line based on another known point 180 degrees in the opposite direction. See <i>Input Property Line – Backsight</i> on page 49 for more information.
Coordinates		Click on the Coordinates icon to display the Input Property Line – Coordinates dialog box (Figure 2-27 on page 50). This option allows you to create the property line by entering Northing and Easting values. See <i>Input Property Line – Coordinates</i> on page 50 for more information.
Bearing Distance		Click on the Bearing Distance icon to display the Input Property Line – Bearing Distance dialog box (Figure 2-28 on page 51). This option allows you to input a distance and direction. See <i>Input Property Line – Bearing Distance</i> on page 51 for more information.
Azimuth Distance		Click on the Azimuth Distance icon to display the Input Property Line – Azimuth Distance dialog box (Figure 2-29 on page 52). This option allows you to input a property line based on an azimuth or direction of a line with respect to the meridian. See <i>Input Property Line – Azimuth Distance</i> on page 52 for more information.
Curves		Click on the Curves icon to display the Input Property Line – Curves dialog box (Figure 2-30 on page 53). This option allows you to input a property line by establishing a radius on an included angle, followed by an arc, chord, or tangent. See <i>Input Property Line – Curves</i> on page 53 for more information.
Turned Angle		Click on the Turned Angle icon to display the Input Property Line – Turned Angle dialog box (Figure 2-31 on page 54). This option allows you to enter a single angle based on a backsight to the previous point. This icon displays when the first point is defined. See <i>Input Property Line – Turned Angle</i> on page 54 for more information.

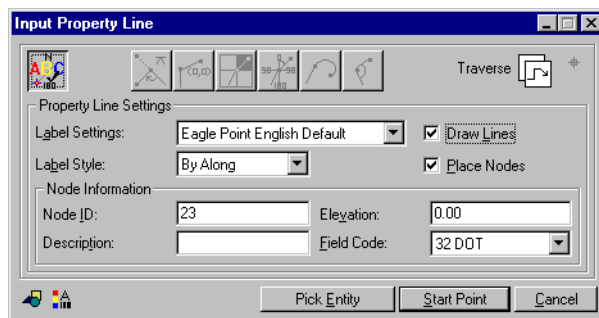





Figure 2-24 Input Property Line – Property Line Settings Dialog Box

Input Property Line – Property Line Settings Dialog Box Definitions

Option	Icon	Function
Property Line Settings		This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot		Use the Traverse option when performing a traverse method of survey input.
		Use the Sideshot option when performing a sideshot method of survey input.

Input Property Line – Property Line Settings Dialog Box Definitions

Option	Icon	Function
PIC		Clicking on this icon allows you to define a distance or value by selecting points in the CAD graphic
Label Settings		This option allows you to select between English or metric units.
Label Style		This option allows you to select where the annotation is placed on the property line.
Draw Lines		Toggle on this option if you want to have lines drawn between points.
Place Nodes		Toggle on this option if you want Northing, Easting, and Elevation information on each point.
Node ID		Enter the Node number from which to start. This feature also reads COGO Nodes in the CAD graphic. There is no need to enter coordinates if you utilize Nodes.
Description		This option allows you to enter a description for the Node.
Elevation		This option allows you to specify the elevation at which the point is placed.
Field Code		This option allows you to assign a different point style for the Node.
CAD Settings		This option allows you to edit/verify the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.
Pick Entity		This option allows you to graphically select an object in the CAD graphic from which to start the survey.
Start Point		Select this option to select a point in the CAD graphic from which to begin the survey.

Input Property Line – Select Start Point

When you click on the Start Point button in the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47), the dialog box below displays. The options on this dialog box allow you to select the starting point or point of beginning for your survey.

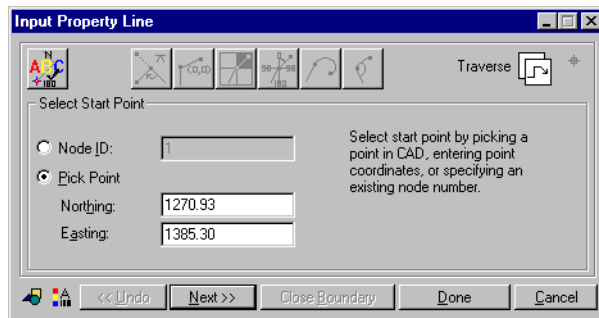








Figure 2-25 Input Property Line – Select Start Point Dialog Box


Input Property Line – Select Start Point Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot		Use the Traverse option when performing a traverse method of survey input.
		Use the Sideshot option when performing a sideshot method of survey input.

Input Property Line – Select Start Point Dialog Box Definitions

Option	Icon	Function
PIC		Clicking on this icon allows you to define a distance or value by selecting points in the CAD graphic.
Node ID		Turn on this radio button to enter the Node number from which to start. This feature also reads COGO Nodes in the CAD graphic. There is no need to enter coordinates if you utilize Nodes.
Pick Point		Turn on this radio button to graphically select the starting point from the CAD graphic.
Northing, Easting		Type the appropriate values for the starting point.
CAD Settings		This option allows you to edit/verify the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

Input Property Line – Backsight

ICON: 

The Backsight command allows you to define a new backsight point of base reference.

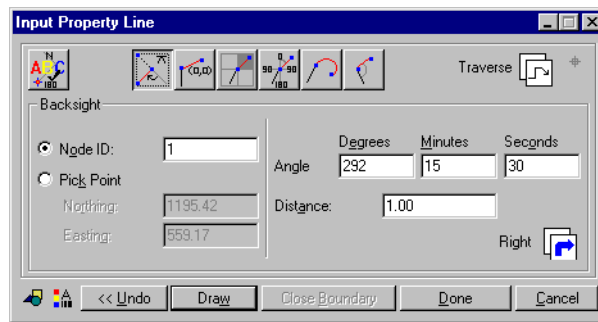










Figure 2-26 Input Property Line – Backsight Dialog Box

Input Property Line – Backsight Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot		Use the Traverse option when performing a traverse method of survey input.
		Use the Sideshot option when performing a sideshot method of survey input.
PIC		Clicking on this icon allows you to define a distance or value by selecting points in the CAD graphic.
Node ID		Turn on this radio button to enter the Node number from which to start. This feature also reads COGO Nodes in the CAD graphic. There is no need to enter coordinates if you utilize Nodes.
Pick Point		Turn on this radio button to graphically select the starting point from the CAD graphic.
Northing, Easting, Angle, Distance		Type the appropriate value in these edit fields.

Input Property Line – Backsight Dialog Box Definitions

Option	Icon	Function
Left/Right		This indicates the direction of the deflection angle. This angle is measured from the previous line segment.
		
CAD Settings		This option allows you to edit/verify the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

Input Property Line – Coordinates



The Coordinates command allows you to create a property line by entering Northing and Easting values.

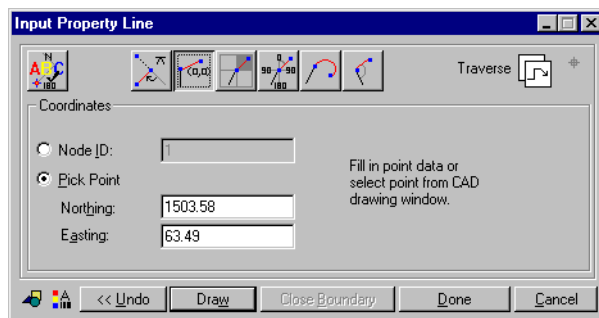








Figure 2-27 Input Property Line – Coordinates Dialog Box

Input Property Line – Coordinates Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot		Use the Traverse option when performing a traverse method of survey input.
		Use the Sideshot option when performing a sideshot method of survey input.
PIC		Clicking on this icon allows you to define a distance or value by selecting points in the CAD graphic.
Node ID		Enter the Node number to start from. This feature also reads COGO Nodes in the CAD graphic.
Pick Point		Turn on this radio button to graphically select the starting point from the CAD graphic.
Northing, Easting		Type the desired values in these edit fields.
CAD Settings		This allows you to edit the layer/level, color, and linetype/linestyle of objects.

Input Property Line – Coordinates Dialog Box Definitions

Option	Icon	Function
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

Input Property Line – Bearing Distance

The Bearing Distance command allows you to specify a distance and direction for your property line.

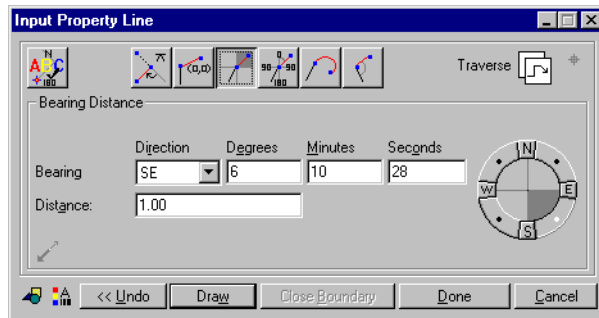




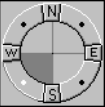


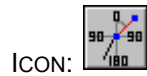


Figure 2-28 Input Property Line – Bearing Distance Dialog Box

Input Property Line – Bearing Distance Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot	 	Use the Traverse option when performing a traverse method of survey input. Use the Sideshot option when performing a sideshot method of survey input.
PIC		Clicking on this icon allows you to select/define a distance or value by selecting points in the CAD graphic.
Bearing, Distance		Type the desired values in these edit fields. You may set the Bearing direction by clicking a quadrant on the compass.
CAD Settings		This option allows you to edit the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

Input Property Line – Azimuth Distance



The Azimuth Distance method allows the property line to be input based on an azimuth, or the direction of a line with respect to the meridian (North or South).

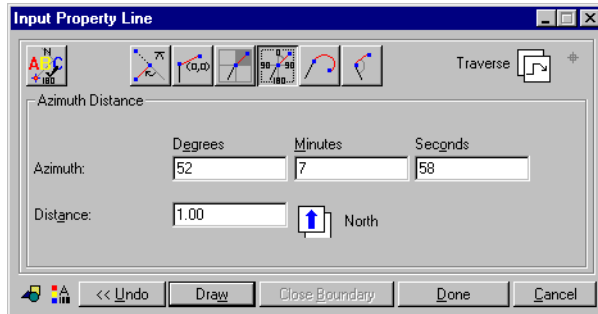








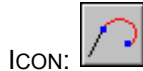


Figure 2-29 Input Property Line – Azimuth Distance Dialog Box

Input Property Line – Azimuth Distance Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot	 	Use the Traverse option when performing a traverse method of survey input. Use the Sideshot option when performing a sideshot method of survey input.
PIC		Clicking on this icon allows you to select a distance or value by selecting points in the CAD graphic.
Azimuth, Distance		Type the desired values in these edit fields.
North, South	 	The North, South icon toggle allows you to define the direction in which the line is drawn.
CAD Settings		This option allows you to edit/verify the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

Input Property Line – Curves



The Curves command allows you to input a curved property line. You must include a radius or an included angle, as well as an arc length, a chord length, a tangent length, or a delta angle.

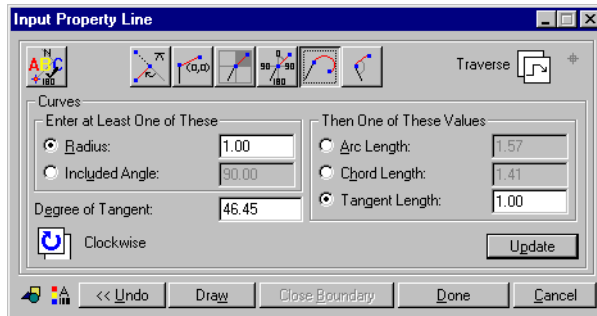


Figure 2-30 Input Property Line – Curves Dialog Box

Input Property Line – Curves Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/ Sideshot		Use the Traverse option when performing a traverse method of survey input.
		Use the Sideshot option when performing a sideshot method of survey input.
PIC		Clicking on this icon allows you to define a distance or value by selecting points in the CAD graphic.
Radius		This option allows you to specify the radius of the curve to be drawn.
Included Angle		This option allows you to specify the angle of the curve.
Arc, Chord, Tangent Length		These values make up the user-defined curve information. At least one of these values is needed.
Degree of Tangent		This option allows you to specify the degree of tangency, if known, for the curve.
Clockwise/ Counter Clockwise		Toggle between Clockwise and Counter Clockwise to determine the direction in which the curve is drawn.
Update		Click on this button to fill in all remaining variables for the curve.
CAD Settings		This option allows you to edit the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

Input Property Line – Turned Angle



The Turned Angle command allows you to enter a single angle based on a backsight to the previous point.

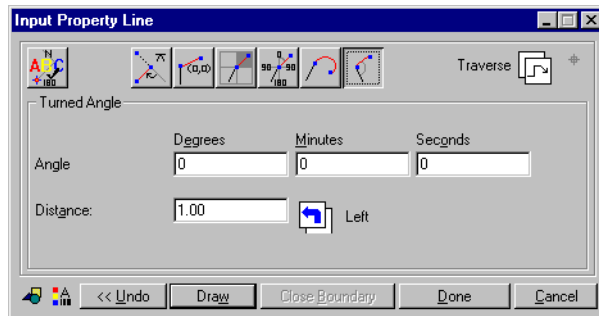










Figure 2-31 Input Property Line – Turned Angle Dialog Box

Input Property Line – Turned Angle Dialog Box Definitions

Option	Icon	Function
Property Line Settings		Click on the Property Line Settings icon to display the Input Property Line – Property Line Settings dialog box (Figure 2-24 on page 47). This option allows you to set up the property lines, assign the labeling styles, and assign the type of survey, etc.
Traverse/Sideshot		Use the Traverse option when performing a traverse method of survey input.
		Use the Sideshot option when performing a sideshot method of survey input.
PIC		Clicking on this icon allows you to define a distance or value by selecting points in the CAD graphic.
Angle, Distance		Type the desired values in these edit fields.
Left/Right		This indicates the direction the angle is turned off the previous line segment.
		
CAD Settings		This option allows you to edit the layer/level, color, and linetype/linestyle of objects.
Text Properties		The settings in the Text CAD Settings dialog box allow you to select text style, height, and the layer/level on which the text is placed.

QuickSteps

1. Select Site Prep → Input Property Line.

The Input Property Line dialog box (Figure 2-24 on page 47) displays.

2. Set the Traverse/Sideshot toggle to Traverse for this example. Select an option from the Label Settings drop list, select an option from the Label Style drop list, and toggle on the Draw Lines and Place Nodes options.

3. Complete the appropriate Node Information edit fields and click on Start Point.

The Input Property Line – Select Start Point dialog box (Figure 2-25 on page 48) displays. You may select a start point by picking a point in CAD, entering point coordinates, or by specifying an existing Node number.

4. Turn on the Pick Point radio button for this example.

5. Enter the appropriate information in the Northing and Easting edit fields. If you use the PIC button, click in the Northing or Easting edit field and click on the PIC button to select the desired starting point and click on Next.



6. Click on the Bearing Distance icon.

The Input Property Line – Bearing Distance dialog box (Figure 2-28 on page 51) displays.

7. Graphically set the compass to the direction in which the line will be drawn or set the Bearing direction from the drop list. Complete the Degrees, Minutes, and Seconds information.

8. Click inside the Distance edit field and either enter the information or click on the PIC button to establish the base point and endpoint.

9. Click on Draw.

The line is placed in the CAD graphic and the Input Property Line – Bearing Distance dialog box redisplay.



10. Click on the Backsight icon to display the Input Property Line – Backsight dialog box (Figure 2-26 on page 49).

11. Turn on the Pick Point radio button for this example and complete the following information: Northing, Easting, Angle, and Distance.

12. Set the Right/Left toggle to the desired direction and click on Draw.

The next property line segment is placed in your drawing.



13. Click on the Turned Angle icon to display the Input Property Line – Turned Angle dialog box (Figure 2-31 on page 54).

14. Complete the Angle and Distance information and set the Right/Left toggle to the desired direction. Click on Draw.

The next segment of the property line is placed in the drawing.



15. Click on the Curves icon to display the Input Property Line – Curves dialog box (Figure 2-30 on page 53).

16. Enter a radius or an included angle, then enter one of the following values: Arc Length, Chord Length, or Tangent Length. Enter the Degree of Tangent value and set the Clockwise/Counter Clockwise toggle to the desired direction. Click on Draw.

The next segment of the property line is placed in the drawing.



17. Click on the Azimuth Distance icon to display the Input Property Line – Azimuth Distance dialog box (Figure 2-29 on page 52).

18. Complete the Azimuth and Distance information. Set the North/South toggle to the desired direction and click on Draw.

The next segment of the property line is placed in the drawing.



19. Click on the Coordinates icon to display the Input Property Line – Coordinates dialog box (Figure 2-27 on page 50).

20. Fill in the point data or select a point from the CAD drawing window. Click on Draw.

The next segment of the property line is placed in the drawing.

21. Continue placing segments as necessary until you are ready to place the final line. Click on **Close Boundary** at the next to last line.

The last line is automatically drawn to connect to the starting point of the property line.

Examples

The following is a traverse example.

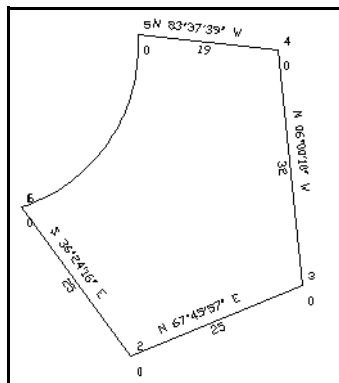


Figure 2-32 Traverse Example

The following is a sideshot example.

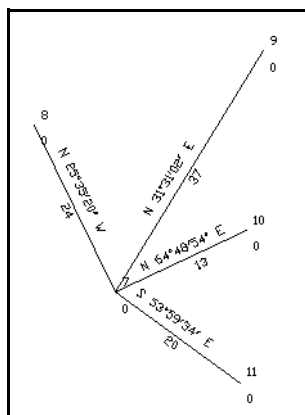


Figure 2-33 Sideshot Example

Building Footprint

ADVANCED IRRIGATION → SITE PREP → BUILDING FOOTPRINT

KEY-IN COMMAND: ai footprint

The Building Footprint command allows you to create a building footprint. This footprint is represented in plan view. The “thick line - thin line” principle for doors and windows can be used.

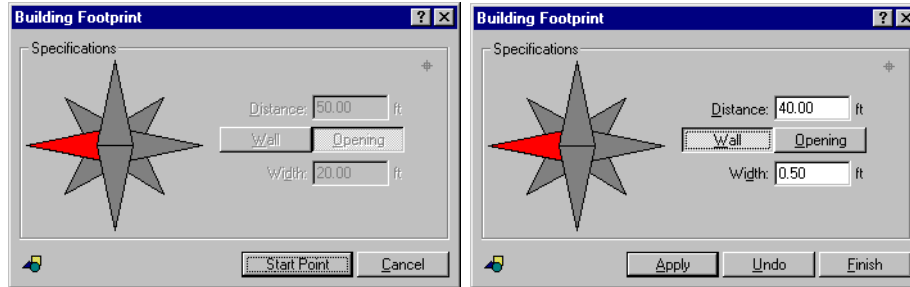


Figure 2-34 Building Footprint Dialog Box

Building Footprint Dialog Box Definitions

Option	Icon	Function
CAD PIC		Clicking on the PIC icon allows you to specify a value by selecting an object or points to define a length.
Distance		Type the distance of the wall section that is to be drawn.
Wall		Click on this button to draw a wall section.
Opening		Click on this button to draw an opening in a wall section.
Width		Type the width of the wall or opening in this edit field.
Start Point		This is the starting point for the building footprint. When you click on this button, you are prompted to select a point in the drawing to begin constructing the building footprint.
Cancel		Clicking on Cancel terminates the command and closes the dialog box.
Apply		Click on Apply to draw the wall or opening according to the values you have entered.
Undo		This option allows you to remove a wall section or opening that may have been placed in error. This saves you from having to start the command from the beginning in the event of a mistake.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, and linetype/style.

QuickSteps

1. Select Site Prep → Building Footprint.

The Building Footprint dialog box (above) displays.

2. Click on the Start Point button.

You are prompted:

Select start point:

3. Pick the beginning of the building footprint.

Use the compass to select the directions in which to place your wall segments and openings.

4. Type the length of the wall in the Distance edit field and click on Wall. Type the width of the wall in the Width edit field and click on Apply.

The first segment of the wall is drawn.

5. Type the length of the opening in the Distance edit field and click on Opening. Type the width of the opening in the Width edit field and click on Apply.

The first wall opening is placed.

6. Repeat steps 3 and 4 until you have placed all but the final wall into the footprint. Click on Close Boundary to complete the footprint. Another option is to place the final wall and click on Finish to complete the footprint.

Locate Plant

ADVANCED IRRIGATION ➞ SITE PREP ➞ PLACE PLANT

KEY-IN COMMAND: ai pl ant

The Locate Plant command in **Advanced Irrigation** allows you to place plant material into the drawing. When you place the plant material into the drawing, you have the ability to specify whether the item is a tree or shrub. This is utilized in the Locate Emitter command (see *Emitter Location* on page 112 for more information).

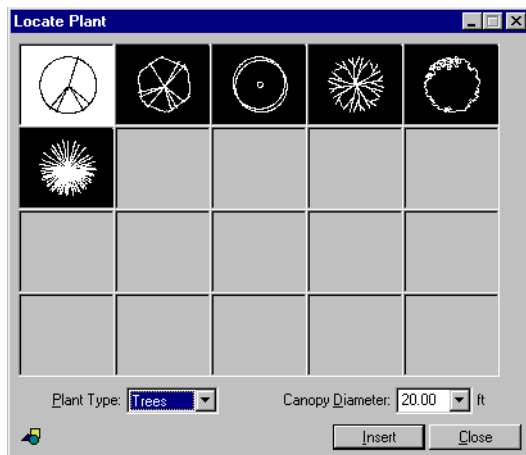



Figure 2-35 Locate Plant Dialog Box

Locate Plant Dialog Box Definitions

Option	Icon	Function
Plant Symbols		The available plant symbols display in the dialog box.
Plant Type		You have the option of defining the plant material symbols as either a tree or a shrub by using this drop list. This information is helpful if you are utilizing the Locate Emitter command.
Canopy Diameter		Type the desired diameter of the plant symbol in this edit field. This is generally the mature size of the plant.
CAD Settings		Clicking on this icon allows you to specify the color and layer/level.
Insert		Click on the Insert button to place the plant in the drawing.

QuickSteps

1. **Select Site Prep → Place Plant.**

The Locate Plant dialog box (Figure 2-35 on page 58) displays.

2. **Select Trees or Shrubs from the Plant Type drop list.**

3. **Select the plant symbol of your choice by clicking with your left mouse button on it.**

4. **Specify the diameter of the canopy.**

5. **Click on Insert.**

You are prompted to select the insertion point for the symbol.

6. **Place the symbol by clicking your left mouse button in the drawing.**

You will continue to be prompted to select an insertion point until you press Enter to redisplay the Locate Plant dialog box. You may choose to place other various plant type symbols or exit the command.

7. **Click on Close to terminate the command and close the dialog box.**

HEADS

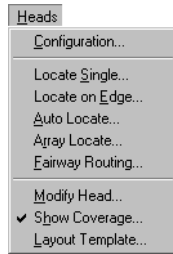


Figure 3-1 Heads Menu

In this chapter:

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<i>Locate Single</i>	64
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<i>Automatic Location</i>	67
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Head Configuration

ADVANCED IRRIGATION ➤ HEADS ➤ CONFIGURATION



ICON:

KEY-IN COMMAND: ai headconfi g

The Head Configuration command allows you to specify which head is associated with head location commands. You are allowed to specify which manufacturer, series, nozzle, and pressure to use as the default when placing heads. You can also specify how the label is placed next to the head symbol.

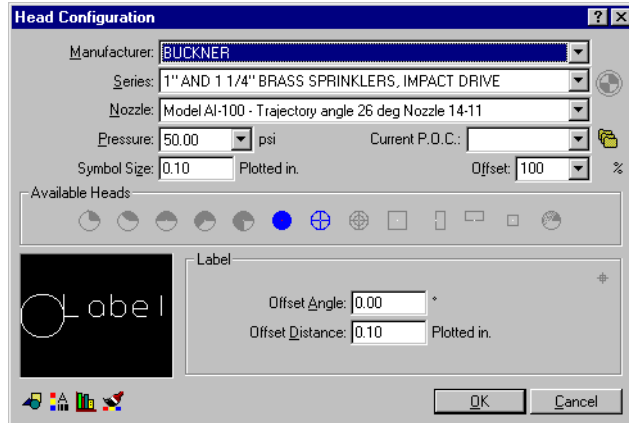






Figure 3-2 Head Configuration Dialog Box

Head Configuration Dialog Box Definitions

Option	Icon	Function
Manufacturer		This is the brand name of the irrigation head. Select from a complete database of irrigation manufacturers. The database is completely customizable. See <i>Head Database Editor</i> on page 128 for more information.
Series		This is the model of the irrigation head. You may select from any of the major manufacturers or add one of your own.
Valve in Head		The Valve in Head icon is in color if the sprinkler head that you have selected has that option.
Nozzle		This is the type of nozzle. You may choose from the complete database of irrigation nozzles.
Pressure		This value is the operation pressure at the irrigation head.
Current P.O.C.		Select from a listing of defined P.O.C.s to assign this sprinkler head. You have the ability to assign the sprinkler heads to a specific point of connection.
P.O.C. Manager		Click on this icon to view a list of all defined points of connection in the P.O.C. Configuration dialog box. Select from a listing of defined P.O.C.s to assign this sprinkler head. You have the ability to assign the sprinkler heads to a specific point of connection.
Symbol Size		This controls the size of your irrigation head symbol. If you set it at .1, the plotted size is one tenth of an inch in diameter if your plot scale is set to 1" = 10'.
Offset		This option allows you to specify how far away from the edge you would like the head symbol placed. This is useful if you are placing heads along a sidewalk edge; the head symbols would not be placed directly on the line, but would instead be placed slightly offset from the defining line.
Available Heads		These are the symbols that are associated with the selected sprinkler head data. See <i>Head Database Editor</i> on page 128 for more information.

Head Configuration Dialog Box Definitions

Option	Icon	Function
Label		This option places a label next to each head symbol as it is placed into the drawing. This is helpful for distinguishing similar heads. An example of this is a Toro 570 placed with both a 4" and 6" popup.
Offset Angle		This option allows you to specify the exact angle at which the label is placed. This is beneficial if you will be working in tight spaces.
Offset Distance		This option allows you to specify the distance from the head at which the label is placed.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which offers options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Database Editor		Clicking on this icon displays the Head Database Editor dialog box (Figure 9-2 on page 128). This allows you to select different head data to be assigned to that symbol, and you also have the option to select a different sprinkler symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.

QuickSteps

1. Select Heads → Configuration.

The Head Configuration dialog box (Figure 3-2 on page 62) displays.

2. Select the desired manufacturer, series, and nozzle of your choice.

Change any of the lists by simply clicking your left mouse button on the arrow to the right of the list. This gives you access to the information located in the sprinkler head database.

3. Select the desired pressure, current P.O.C., offset, and symbol size.

Select the operating pressure and current point of connection that the head will be associated with. The symbol size controls the size of your irrigation head symbol. If you set it at .1, the plotted size is one tenth of an inch in diameter if your plot scale is set to 1" = 10'. The Offset option allows you to specify how far away from the edge to place the head symbol. This is useful if you are placing heads along a sidewalk edge. The head symbols would not be placed directly on the line, but rather placed slightly offset from the defining line.

4. Set the Offset Angle and Offset Distance values for the label.

If you are placing labels next to your sprinkler heads, set the appropriate angle and distance.

5. Click on OK when all information has been entered and verified.

Locate Single



KEY-IN COMMAND: ai si ngl e

The Locate Single command allows you to place sprinklers individually. Many designers prefer this method of placing sprinklers because it gives them ultimate control over where the sprinklers are to be located. As such, the ability to quickly pick heads from the tool bar and pop them into your drawing is a key feature of this product. It is useful to use the Layout template in conjunction with this command.

This command provides a fast and easy way to quickly locate sprinklers manually in your drawing. Simply pick the desired coverage from the tool bar or menu, show an insertion point, and, if you are inserting a partial circle head, a rotation angle. Continue placing additional heads of the same coverage arc and then press Enter to terminate the command. You can also terminate the command by selecting another command, or by choosing a different coverage arc to begin inserting. Both the sprinkler symbol and the coverage arc are placed in your drawing on separate layers. The layers are controlled via the CAD Settings dialog box (under the Configuration menu).

The program assumes you are using the currently selected head as set up in the Head Configuration command. For more information, see *Head Configuration* on page 62.

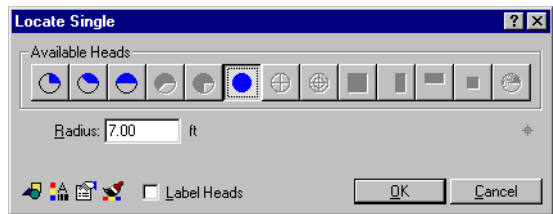






Figure 3-3 Locate Single Dialog Box

Locate Single Dialog Box Definitions

Option	Icon	Function
Available Heads		Select from the choice of available heads and their associated symbols.
Radius		This value is the sprinkler head coverage radius.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which contains options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Configuration		Clicking on this icon displays the Head Configuration dialog box (Figure 3-2 on page 62). This allows you to select different head data to be assigned to that symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.
Label Heads		The Label Heads option allows you to place a label next to the head as you place it into the drawing.

QuickSteps

1. Select Heads → Locate Single.

The Locate Single dialog box (Figure 3-3 on page 64) displays.

You may be prompted to associate this sprinkler head to a specific P.O.C. This is normal when placing the first sprinkler head. You also have the opportunity to assign the P.O.C. information at a later time. If you are placing the first head, the Head Configuration dialog box (Figure 3-2 on page 62) displays. Verify/change the data to reflect the desired sprinkler head data.

2. Select the desired coverage to be placed, as well as the radius.

The radius is set to the manufacturer's specifications. You have the ability to adjust this value to better meet the needs of this particular application.

You may want to adjust for a factor such as a prevailing wind.

3. Toggle on Label Heads if you want to have a label assigned to the sprinkler head.

Use this option if you want to place a label next to each head symbol as it is placed into the drawing. This is helpful in distinguishing similar heads. An example of this is a Toro 570 placed with both a 4" and 6" popup.

4. Verify the CAD settings for appropriate layer/color settings.

5. Click on OK to place the heads in the drawing.

You are prompted to select an insertion point for the sprinkler head. Click your left mouse button to place the sprinkler heads into the drawing.

6. Right click/Press Enter to end the command.

7. Click on Cancel to close the Locate Single dialog box (Figure 3-3 on page 64).

Locate on Edge

ADVANCED IRRIGATION ➤ HEADS ➤ LOCATE ON EDGE

ICON: 

KEY-IN COMMAND: ai edge

The Locate on Edge command allows you to place user-defined sprinklers along the edge of a turf area. This command follows a polyline and locates specified heads along the specified side based on the information given in the Locate on Edge dialog box.

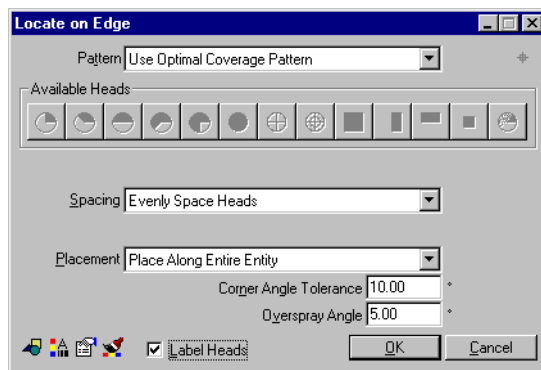






Figure 3-4 Locate on Edge Dialog Box

Locate on Edge Dialog Box Definitions

Option	Icon	Function
Pattern		<p>Use Optimal Coverage Pattern: The Use Optimal Coverage Pattern option allows the software to place a logical coverage in the designated area. An example of this is if you had selected a continuous line that included arcs. The software would place quarter, half, or any available coverage that would be best suited for the situation.</p> <p>Place Specific Coverage: The Place Specific Coverage option allows you to select a specific coverage pattern to be placed into the drawing. You would be placing just a quarter, half, or any of the coverages selected.</p>
Spacing		<p>Evenly Space Heads: The Evenly Space Heads option places the heads along the points selected, based on the total distance and coverage arc. An example of the Evenly Space Heads option is if you have a 70-foot line and set the distance to 15 feet. The Evenly Space Heads option would decrease the spacing to compensate for the last 10 feet.</p> <p>Place by Distance: The Place by Distance option places the heads at a set distance (generally the coverage arc) with no variation. An example of the Place by Distance option is if you have a 70-foot line and set the distance at 15 feet. The software would place a head every 15 feet, leaving 10 feet at the very end with no heads being placed.</p>
Placement		<p>Place Along Entire Entity: This option processes the full length of an entity. If you have a continuous line drawn (polyline in AutoCAD or linestring in MicroStation), it follows each segment as it places the heads.</p> <p>Place Along Portion of Entity: This option allows you to select existing entities along which to place heads. If you have a continuous line drawn (polyline in AutoCAD or linestring in MicroStation), it follows only the segment selected.</p> <p>Pick Points: This option allows you to select any two points.</p>
Corner Angle Tolerance		This is the value in degrees that is used in considering whether an arc and/or line is straight with respect to the previous segment. The value is used as a tolerance (plus or minus) from 180 degrees.
Overspray Angle		The Overspray Angle refers to when the program should move to the next spray angle. For example, if you have a corner that is set at 94 degrees, you need to let the program know if you should use a 90-degree spray head in that corner, or jump to a 105-degree spray head. If the overspray angle is set to five, you would still use a 90-degree head, up to 95 degrees.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which contains options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Configuration		Clicking on this icon displays the Head Configuration dialog box (Figure 3-2 on page 62). This allows you to select different head data to be assigned to that symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.
Label Heads		The Label Heads option allows you to place a label next to the head as you place it into the drawing.

QuickSteps

1. Select Heads → Locate on Edge.

The Locate on Edge dialog box (Figure 3-4 on page 65) displays.

2. Verify the settings in the Locate on Edge dialog box and click on OK.

You may select the pattern type as well as the spacing and placement method.

Your placement options are Place Along Entire Entity, Place Along Portion of Entity, and Pick Points. Refer to *Placement* in the table called *Locate on Edge Dialog Box Definitions* above for descriptions of these options.

3. Toggle on the Label Heads option if desired.

4. Click on OK to start the command.

You are prompted to select an entity or pick points, depending upon the placement option selected. Select the appropriate item and select the side for coverage. The heads are placed.

5. Click on Cancel to close the Locate on Edge dialog box.

Automatic Location

ADVANCED IRRIGATION ➤ HEADS ➤ AUTO LOCATE



KEY-IN COMMAND: ai auto

The Automatic Location command allows you to locate all the sprinkler heads inside a given area (defined by a closed polyline) in a single step. Options are provided so that the full circle (360°) heads can be placed separately from the part circle (edge) heads, giving you the option to change sprinklers or nozzles if desired. You maintain control over the type of sprinklers you want to use, the type of spacing (triangular or square), and the distance between the heads. The program selects the best location for the sprinklers. In most cases, you would modify the suggested layout in order to achieve optimum coverage, but for many applications, this command can greatly speed up the initial placement of sprinklers.

✓ **Be sure you have a closed (unsplined) polyline in your drawing prior to running this command.**

Evenly-spaced heads occur by using an optimizing routine that determines how to best fit all heads in an area so that they are an equal distance apart, regardless of the base pattern of square or triangular spacing.

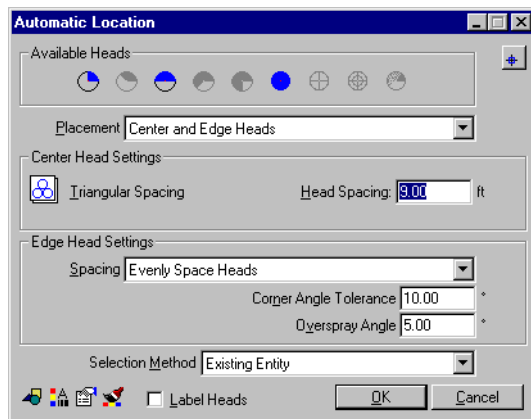






Figure 3-5 Automatic Location Dialog Box

Automatic Location Dialog Box Definitions

Option	Icon	Function
Available Heads		The coverages that are available for the selected data file are colorized. This is to eliminate confusion and help you select the proper coverage.

Automatic Location Dialog Box Definitions

Option	Icon	Function
Placement		<p>The Placement options allow you specify the type of automatic head placement method that you want to utilize. Select from placing Center and Edge Heads, Center Heads Set Back from Edge, Center Heads Only, or Edge Heads Only.</p> <p>Center and Edge Heads: Automatically place the heads in the center, as well as along the edge. This fills in the enclosed area with heads using the sprinkler data selected.</p> <p>Center Heads Set Back from Edge: When selected, this keeps the complete head coverage within the boundary.</p> <p>Center Heads Only: This option places all heads inside the boundary – not necessarily the coverages. Use the Center Heads Only option to place irrigation heads in the middle of the defined area.</p> <p>Edge Heads Only: Use this option to place irrigation heads on the perimeter of the defined area.</p>
Center Head Settings		<p>Triangular/Square Spacing: Select a pattern style that you want the computer to use when placing the sprinkler heads into the drawing. Either selection places a head-to-head pattern. The triangular pattern, however, is in a staggered pattern.</p> <p>Head Spacing: This option allows you to adjust the spacing from head-to-head to a user-defined spacing. This is useful when compensating for wind or other design variables.</p>
Spacing		<p>Evenly Space Heads: The Evenly Space Heads option places the heads along the points selected, based on the total distance and coverage arc. An example of the Evenly Space Heads option would be if you have a 70-foot line and set the distance at 15 feet. The Evenly Space Heads option would decrease the spacing to compensate for the last 10 feet.</p> <p>Place by Distance: The Place by Distance option places the heads at a set distance (generally the coverage arc) with no variation. An example of the Place by Distance option would be if you have a 70-foot line and set the distance at 15 feet. The software would place a head every 15 feet, leaving 10 feet at the very end with no heads being placed.</p>
Corner Angle Tolerance		This is the value in degrees that is used in considering whether an arc and/or line is straight with respect to the previous segment. The value is used as a tolerance (plus or minus) from 180 degrees.
Overspray Angle		The Overspray Angle refers to when the program should move to the next spray angle. For example, if you have a corner that is set at 94 degrees, you need to let the program know if you should use a 90-degree spray head in that corner, or jump to a 105-degree spray head. If the overspray angle is set to five, you would still use a 90-degree head, up to 95 degrees.
Selection Method		Choose your selection method from this drop list. Your choices are Existing Entity or Pick Points.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which contains options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Configuration		Clicking on this icon displays the Head Configuration dialog box (Figure 3-2 on page 62). This allows you to select different head data to be assigned to that symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.
Label Heads		The Label Heads option allows you to place a label next to the head as you place it into the drawing.

QuickSteps

1. Select Heads → Auto Locate.

✓ **You must have a closed polyline in the drawing before you run this command.**

The Head Configuration dialog box (Figure 3-2 on page 62) displays if this is the first time that you locate sprinkler heads. This is to ensure that you have the proper head information for current head placement. When you verify the information and click on OK, the Automatic Location dialog box (Figure 3-5 on page 67) displays.

2. Select the placement method.

Depending on your selection, the resulting dialog box options will vary.

3. Select the desired options for the Center Head Settings and/or Edge Head Settings.

4. Select Existing Entity from the Selection Method drop list.

5. Toggle on Label Heads and click on OK.

You are prompted to select the closed polyline.

6. Left click on the polyline.

You are prompted to select a rotation angle.

7. Select a rotation angle.

The angle is the base angle at which the heads are placed. After selecting the angle, you are prompted to select any void areas.

8. Select the void areas.

These are areas on which you do not want to have sprinkler heads placed. They could be concrete pads, walkways, etc.

9. Press Enter.

The heads are placed into the drawing and the dialog box redisplay.

10. Click on Cancel to close the dialog box.

Locate by Array

ADVANCED IRRIGATION ➤ HEADS ➤ ARRAY LOCATE



KEY-IN COMMAND: ai array

The Locate by Array command allows you to array a sprinkler in order to get multiple copies of that sprinkler over a large area (similar to the AutoCAD/IntelliCAD/**Eagle Point Graphics Engine** Array command). The AutoCAD/**Eagle Point Graphics Engine** Array command only gives rectangular copies of the objects selected, but irrigation designs are frequently done with triangular spacing. This saves you from having to manually locate a large number of sprinklers. Both the coverage arc and symbol are located. This is similar to the automatic head location, but areas to be covered by an array must be rectangular (or heads must be added or erased after placement), and only 360° heads are used with this command.

Basically, you are requesting two points in order to define the angle at which to array the sprinklers.

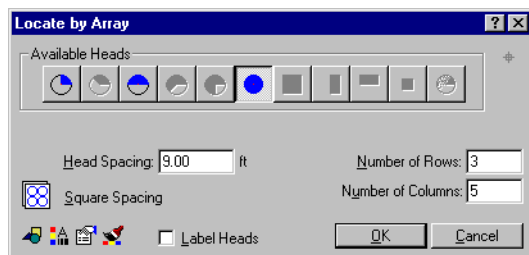







Figure 3-6 Locate by Array Dialog Box

Locate by Array Dialog Box Definitions

Option	Icon	Function
Head Spacing		This option allows you to adjust the spacing from head-to-head to a user-defined spacing. This is useful when compensating for wind or other design variables.
Triangular/ Square Spacing		Click on this icon toggle to select a pattern style that you want the computer to use when placing the sprinkler heads into the drawing. Either selection places a head-to-head pattern. The triangular pattern, however, is in a staggered pattern.
Number of Rows		In this edit field, specify the number of rows of sprinkler heads to be placed.
Number of Columns		In this edit field, specify the number of columns of sprinkler heads to be placed.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which contains options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Configuration		Clicking on this icon displays the Head Configuration dialog box (Figure 3-2 on page 62). This allows you to select different head data to be assigned to that symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.
Label Heads		The Label Heads option allows you to place a label next to the head as you place it into the drawing.

QuickSteps

1. Select Heads → Array Locate.

The Head Configuration dialog box (Figure 3-2 on page 62) displays if it is the first time that you locate sprinkler heads. This is to ensure that you have the proper data selected for the current application.

2. Verify the information and click on OK.

The Locate by Array dialog box (above) displays.

3. Verify the head spacing information.

4. Select either square or triangular spacing and specify the number of rows and columns.

5. Toggle on the Label Heads option and click on OK.

You are prompted to select an insertion point.

6. Select an insertion point in the drawing.

You are prompted to select a rotation angle.

7. Select a rotation angle in the drawing.

The heads are placed in the drawing and the Locate by Array dialog box redisplay.

8. Click on Cancel to end the command.

Locate in Fairway

ADVANCED IRRIGATION ➤ HEADS ➤ FAIRWAY ROUTING

KEY-IN COMMAND: ai fai rway

The Locate in Fairway command allows you to place sprinkler heads in a fairway. You are able to specify whether to select an existing object or pick points to specify the location along which to place the heads. Once you have selected the object or points, you are prompted to specify on which side you want to place the heads.

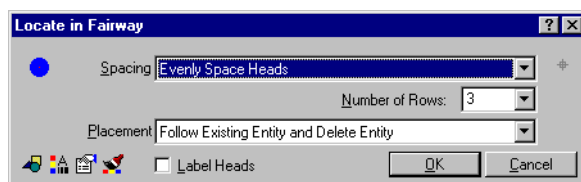


Figure 3-7 Locate in Fairway Dialog Box

Locate in Fairway Dialog Box Definitions

Option	Icon	Function
Spacing		Evenly Space Heads: The Evenly Space Heads option places the heads along the points selected, based on the total distance and coverage arc. An example of the Evenly Space Heads option is if you have a 70-foot line and set the distance at 15 feet. The Evenly Space Heads option would decrease the spacing to compensate for the last 10 feet. Place by Distance: The Place by Distance option places the heads at a set distance (generally the coverage arc) with no variation. An example of the Place by Distance option is if you have a 70-foot line and set the distance at 15 feet. The software would place a head every 15 feet, leaving 10 feet at the very end with no head placed at the end.
Number of Rows		Use this drop list to specify the number of rows of sprinkler heads to be placed.
Placement		Follow Existing Entity and Delete Entity: This option processes the full length of an entity. If you have a continuous line drawn (polyline in AutoCAD or linestring in MicroStation), it follows each segment as it places the heads. When complete, it deletes the defining line. Follow Existing Entity: This option operates the same as Follow Existing Entity and Delete Entity, except that it leaves the defining line. Pick Points: Selecting this option allows you to place heads into the drawing by picking two points in the drawing as opposed to drawing a line along which to place the heads.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which contains options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Configuration		Clicking on this icon displays the Head Configuration dialog box (Figure 3-2 on page 62). This allows you to select different head data to be assigned to that symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.

Locate in Fairway Dialog Box Definitions

Option	Icon	Function
Label Heads		The Label Heads option allows you to place a label next to the head as you place it into the drawing.

QuickSteps

1. Select Heads → Fairway Routing.

The Head Configuration dialog box (Figure 3-2 on page 62) displays if it is the first time that you locate sprinkler heads. This is to ensure that you have the proper data selected for the current application.

2. Verify the information and click on OK.

The Locate in Fairway dialog box (Figure 3-7 on page 71) displays.

3. Select Evenly Space Heads from the Spacing drop list.

4. Set the Number of Rows to any number.

5. Select a placement method from the Placement drop list.

6. Verify the CAD Settings and Text Properties. Toggle on Label Heads if desired, and click on OK.

You are prompted to select a start point if you chose Pick Points as your placement method; otherwise, you are prompted to select a polyline.

7. If you are prompted to select a start point, select a start point and all subsequent points as desired and press Enter. If you are prompted to select a polyline, select the desired polyline.

The heads are placed.

8. Click on Cancel to close the Locate in Fairway dialog box.

Modify Head

ADVANCED IRRIGATION ⇨ HEADS ⇨ MODIFY HEAD

KEY-IN COMMAND: ai modhead

The Modify Head command allows you to graphically select heads in the drawing and modify the head properties. These properties include the manufacturer, series, nozzle, pressure, and flow rate.

Additionally, you are able to modify the spray radius and symbol offset. All of these properties are displayed in the Head Database Editor. See *Head Database Editor* on page 128 for more information.

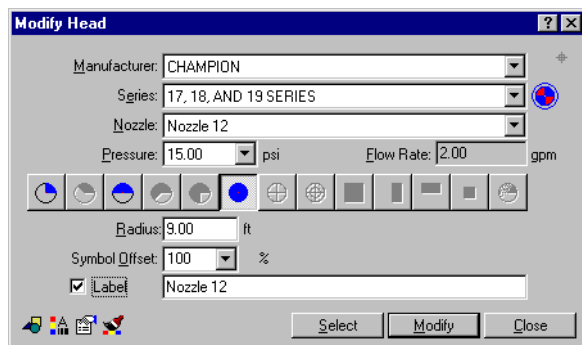






Figure 3-8 Modify Head Dialog Box

Modify Head Dialog Box Definitions

Option	Icon	Function
Manufacturer		This drop list displays the brand name of the irrigation head. You have the ability to change this information if the need arises.
Series		This drop list displays the model of the irrigation head. You may modify the type of sprinkler by selecting a different one from the drop list.
Nozzle		This drop list displays the type of nozzle. You may modify this information.
Pressure		This drop list displays the operation pressure at the irrigation head.
Flow Rate		The flow rate for the head is displayed in this edit field. This number is typically stated in gpm (gallons per minute) in English units and lpm (liters per minute) in metric units.
Length/Radius		This edit field displays the distance of water spray from the sprinkler head.
Symbol Offset		This drop list allows you to specify how far away from the edge you would like the head symbol placed. This is useful if you are placing heads along a sidewalk edge. The head symbols would not be placed directly on the line, but rather placed slightly offset from the defining line.
Width		This value displays when a head with a non-circular spray pattern is picked. This is the width of the spray pattern.
Angle		This value displays when a head with a non-circular spray pattern is picked. This is the angle of the spray pattern.
Label		The label that was assigned to the selected head is displayed in this edit field. You have the ability to modify the description.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.
Text Properties		Clicking on this icon displays the Text CAD Settings dialog box, which contains options that enable you to specify the layer/level, color, text style, unit, and plotted size.
Head Configuration		Clicking on this icon displays the Head Configuration dialog box (Figure 3-2 on page 62). This allows you to select different head data to be assigned to that symbol. You do not have to close the current command to configure to a different sprinkler.
Match Nozzle Properties		This option allows you to configure your current selection from an existing sprinkler head that has been placed into the design. This is a tremendous time saver when compared to having to reselect all associated information through the Head Configuration → Head Database Editor command.
Select		Click on this button to select a head to be modified or queried.
Modify		Click on the Modify button once the desired changes are made in the current dialog box.
Close		Click on Close to end or terminate the command.

QuickSteps**1. Select Heads → Modify Head.**

The Modify Head dialog box (Figure 3-8 on page 72) displays.

2. Click on the Select button.

You are prompted:

Select nozzle or coverage arc

3. Select the nozzle or coverage arc for the heads that you want to modify.

The Modify Head dialog box displays all information associated with the selected head.

4. Make the desired changes and click on Modify.

The heads are modified according to the data input.

5. Click on Close to end the command.

Show Coverage

ADVANCED IRRIGATION ➤ HEADS ➤ SHOW COVERAGE

KEY-IN COMMAND: ai cov

The Show Coverage command is a toggle that turns the coverage arcs on or off. During the design process, you typically want the coverage arcs turned on so that you can see where the coverage is and design accordingly. However, once the sprinkler heads are laid out, the coverage arcs clutter up a drawing and no longer serve a purpose. Most final irrigation drawings do not show the coverage arcs – they are design tools only. Thus, by toggling off the coverage arcs with this command, you can utilize the design drawing as the final plan.

When you select Heads → Show Coverage, the CAD engine that you are operating on (AutoCAD, **Eagle Point Graphics Engine**) automatically turns off the irrigation coverage layer.

Layout Template

ADVANCED IRRIGATION ➤ HEADS ➤ LAYOUT TEMPLATE

KEY-IN COMMAND: ai template

The purpose of the Layout Template command is to place a hatch pattern inside an area to be irrigated. This hatch pattern is a template or guideline that you can use when locating sprinkler heads. Since many irrigation designers prefer to locate each individual head, this can help ensure that heads are evenly spaced.

✓ **Be sure you have a closed polyline in your drawing before starting this command.**

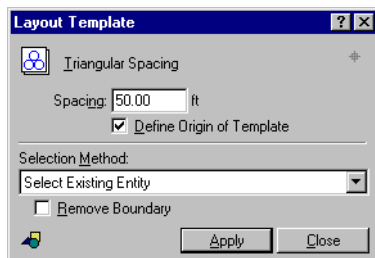



Figure 3-9 Layout Template Dialog Box

Layout Template Dialog Box Definitions

Option	Icon	Function
Triangular/ Square Spacing		Using this icon toggle, you can select between triangular or square spacing. The icon toggle changes from one to the other when you click on it. The default is triangular.
Spacing		This edit field option allows you to adjust the spacing from head-to-head to a user-defined spacing. This is useful when compensating for wind or other design variables.
Define Origin of Template		This option allows you to select the starting point for the crosshatch. This is helpful when lining up the angle at which the hatch is placed. An example of this would be if you had to align the pattern to match the angle of an existing building or property line.
Selection Method		Your options for the selection method include: Select Existing Entity and Pick Points. Select the desired option from this drop list.
Remove Boundary		When this option is toggled on, the polyline boundary is removed when the hatch pattern is placed.

Layout Template Dialog Box Definitions

Option	Icon	Function
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and line thickness.

QuickSteps

1. **Select Heads → Layout Template.**

The Layout Template dialog box (Figure 3-9 on page 74) displays.

✓ **You must have a closed polyline in the drawing prior to starting this command.**

2. **Select either Square or Triangular spacing.**

Depending on the site, one spacing type may be more beneficial.

3. **In the Spacing edit field, type the desired spacing.**

This is to set the spacing for the sprinkler heads. This value is generally the distance of the coverage arc or radius.

4. **Toggle off Define Origin of Template.**

5. **From the Selection Method drop list, choose Select Existing Entity.**

6. **Toggle off Remove Boundary.**

7. **Click on Apply.**

You are prompted to select a closed polyline.

8. **Select a closed polyline.**

You are prompted to select the rotation angle.

9. **Click in the drawing to set the rotation angle as desired.**

You are prompted to select islands to ignore.

10. **Specify any areas within the closed polyline that you do not want to crosshatch and press Enter.**

The crosshatch is placed and the Layout Template dialog box redisplays.

11. **Click on Close to close the Layout Template dialog box.**

ZONES

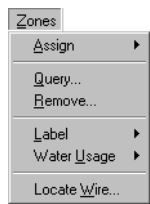


Figure 4-1 Zones Menu

In this chapter:

<i>Assign Zone</i>	78
<i>Attach to Satellite</i>	80
<i>Query Zone Data</i>	81
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Assign Zone

ADVANCED IRRIGATION ➤ ZONES ➤ ASSIGN ➤ ZONE

KEY-IN COMMAND: ai zone


The purpose of this command is to group all heads into a zone. Typically, only a certain amount of water is available at any one time on a site. The actual amount of water available can be determined by one of the following methods:

- Call the local Planning Department and ask for the water flow and pressure at a given address.
- Use a special flow meter attached to a water source to measure flow rate.
- Use a five-gallon bucket and a stopwatch and measure how much water you can obtain from a spigot in one minute.

For a residence, this might be 15 gallons per minute. For a commercial application or an apartment complex, this might be 60 or 70 gallons per minute. For a golf course that has its own pond and high-powered pump, this might be several hundred gallons per minute. In each case, however, there is a limited amount of water that is available at one time. Therefore, it is necessary to group sprinklers that are controlled by the same valve in order to have enough water. Typically, a zone uses about 90% of the available water, so that zone must be shut down before the next zone is turned on. This process is handled by scheduling which zones are to operate at which times, and then programming the controller or clock to operate those zones at the times requested.

Assume you have 15 gpm available and sprinklers that are discharging 4 gpm for a 360° head, 3 gpm for a 270° head, 2 gpm for a 180° head, and 1 gpm for a 90° head. It is easy to total up the discharge put out by these heads. For argument's sake, assume you have a rectangle with a 90° head in each corner, one half circle head along the short side, two half circle heads along the length, and one full circle head in the center of this area. If you add up the combined discharge of all these heads, you would have 20 gpm. You only have 15 gpm available. Therefore, you would need a minimum of two zones in order to water this entire area. The second zone would be turned on after the first zone had been turned off.

Once you group the heads into a zone by outlining a zone with a closed polyline (the polyline is drawn on a separate layer/level that can be turned off), you can visually see which heads belong to which zone.

 *It is easier to zone your entire job site at once rather than to select heads again later during the piping process.*

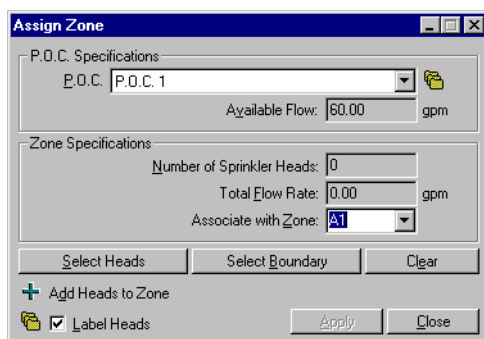





Figure 4-2 Assign Zone Dialog Box

Assign Zone Dialog Box Definitions

Option	Icon	Function
P.O.C.		From this drop list, choose the point of connection to which the zone is assigned. You have the ability to select from a list of user-defined points of connection.
P.O.C. Manager		Clicking on the P.O.C. Manager icon allows you to add/define a new point of connection. This saves time, as you do not have to exit the command and go back to the P.O.C. Menu. For information on adding points of connection, refer to <i>P.O.C.</i> , which begins on page 1.
Available Flow		The available water flow for the selected point of connection displays in this field. This value is calculated from the information that was entered when defining the P.O.C. and cannot be modified here. You would need to modify the original P.O.C. to change this value.
Number of Sprinkler Heads		When you select the sprinkler heads to assign to a specific zone, the running total displays in this field.
Total Flow Rate		The flow rate for the selected heads is displayed in this field. This value is listed in gpm in an English project or lpm (liters per minute) in a metric drawing file.
Associate with Zone		Once the sprinkler heads have been selected, you have the ability to group them together to define them as a zone. Any previously defined zones are displayed in this drop list.
Select Heads		When you click on this button, you are prompted to select the sprinkler heads to be defined as a zone. If you select a few heads and right-click, you have the ability to get a running total on number of heads and flow rate. You are able to select each head individually or use a window selection method.
Select Boundary		You are able to utilize this option if you have previously drawn a polyline/linestring in the drawing.
Clear		This option will zero out the number of heads, as well as the total flow rates.
Add Heads to Zone/Subtract Heads from Zone		This toggle allows you to add or subtract heads to/from the zone.
Zone Label Manager		Clicking on this icon displays the Configure Zone Head Label dialog box, which provides options for setting the label offset angle and distance, as well as choosing whether to label the P.O.C. and Zone.
Label Heads		Click in the box to toggle on this option to have a label with the P.O.C. information placed next to each head. This is useful when drawing lateral pipes. You are less likely to try to connect a sprinkler head from another zone into the current one. These labels are placed on an individual layer for printing/plotting flexibility.

QuickSteps

1. Select Zones → Assign → Zone.

The Assign Zone dialog box (Figure 4-2 on page 78) displays.

2. Select the P.O.C. with which to associate the zone.

3. Type the name of the zone or the ID of the zone in the Associate with Zone field.

4. Toggle on the Add Heads to Zone option.

5. Toggle on Label Heads.

6. Click on Select Heads.

You are prompted to select the heads.

7. Select the heads that you want to group together as a zone and press Enter.

8. Verify the number of heads and the flow rate in the Assign Zone dialog box and click on Apply.

Clicking on Apply locks in all of the previously entered information for the zone. The software also calculates the precipitation rate for the selected heads.

9. Click on Close to end the command.

Attach to Satellite

ADVANCED IRRIGATION ⇨ ZONES ⇨ ASSIGN ⇨ SATELLITE

KEY-IN COMMAND: ai satellite

This command operates along the same principles as the Assign Zones command, except that it is designed for valve in head systems.

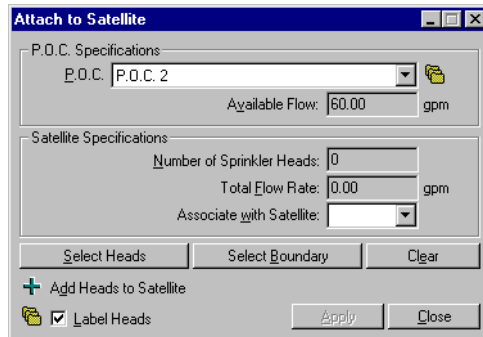


Figure 4-3 Attach to Satellite Dialog Box

Attach to Satellite Dialog Box Definitions

Option	Icon	Function
P.O.C.		From this drop list, choose the point of connection to which the zone is assigned. You have the ability to select from a list of user-defined points of connection.
P.O.C. Manager		Clicking on the P.O.C. Manager icon allows you to add/define a new point of connection. This saves time, as you do not have to exit the command and go back to the P.O.C. Menu. For information on adding points of connection, refer to <i>P.O.C.</i> , which begins on page 1.
Available Flow		The available water flow for the selected point of connection displays in this field. This value is calculated from the information that was entered when defining the P.O.C. and cannot be modified here. You would need to modify the original P.O.C. to change this value.
Number of Sprinkler Heads		When you select the sprinkler heads to assign to a specific zone, the running total displays in this field.
Total Flow Rate		The flow rate for the selected heads is displayed in this field. This value is listed in gpm in an English project or lpm in a metric drawing file.
Associate with Satellite:		Once the sprinkler heads have been selected, you have the ability to group them together to define them as a satellite. Any previously defined satellites are displayed in this drop list.
Select Heads		When you click on this button, you are prompted to select the sprinkler heads to be defined as a zone. If you select a few heads and right-click, you have the ability to get a running total on the number of heads and the flow rate. You are able to select each head individually or use a window selection method.
Select Boundary		You are able to utilize this option if you have previously drawn a closed polyline/linestring in the drawing.
Clear		This option zeroes out the number of heads and the total flow rates.
Add Heads to Satellite/ Subtract Heads from Satellite		This toggle allows you to add or subtract heads to/from the satellite.
Zone Label Manager		Clicking on this icon displays the Configure Zone Head Label dialog box, which provides options for setting the label offset angle and distance, as well as choosing whether to label the P.O.C. and Zone.

Attach to Satellite Dialog Box Definitions

Option	Icon	Function
Label Heads		Click in the box to toggle on this option and have a label with the P.O.C. information placed next to each head. This is useful when drawing lateral pipes. You are less likely to try to connect a sprinkler head from another zone into the current one. These labels are placed on an individual layer for printing/plotting flexibility.

QuickSteps

1. **Select Zones → Assign → Satellite.**

The Attach to Satellite dialog box (Figure 4-3 on page 80) displays.

2. **Select the P.O.C. with which to associate the zone.**
3. **Type the name of the zone or the ID of the zone in the Associate with Satellite field.**
4. **Toggle on Add Heads to Satellite.**
5. **Toggle on Label Heads.**
6. **Click on Select Heads.**

You are prompted to select the heads.

7. **Select the heads that you want to group together as a satellite, and press Enter.**
8. **Verify the number of heads and the flow rate and click on Apply.**

Click on Apply to lock in all of the previously entered information for the satellite. The software also calculates the precipitation rate for the selected heads.

9. **Click on Close to end the command.**

Query Zone Data

ADVANCED IRRIGATION → ZONES → QUERY

KEY-IN COMMAND: ai qzone

The Query Zone Data command allows you to select a sprinkler head or a zone valve to see all associated information for that zone. You see the P.O.C. description, Zone ID, and number of sprinkler heads. You also see the flow and precipitation rates associated with the zone. The precipitation rate is calculated from the total coverage area and the total precipitation of the zone. The Total Area method is used to calculate the precipitation rate (*The Handbook of Technical Irrigation Information*, Hunter Industries, 2002). The displayed values are for viewing purposes only and cannot be edited.

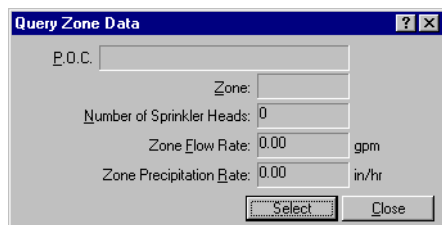


Figure 4-4 Query Zone Data Dialog Box

Query Zone Data Dialog Box Definitions

Option	Function
P.O.C.	The point of connection for the selected head is displayed in this field. This is a view-only command.
Zone	The zone that the head was assigned to is listed in this field. This is a view-only command.
Number of Sprinkler Heads	The total number of sprinkler heads in the zone is listed in this field. This is a view-only command.
Zone Flow Rate	The total flow rate for the entire zone is listed in this field. This is a view-only command.
Zone Precipitation Rate	The precipitation flow rate for the entire zone is listed in this field. This is a view-only command.
Select	When you click on Select, you may pick a sprinkler head to query all associated information.

QuickSteps

1. Select Zones → Query.

The Query Zone Data dialog box (Figure 4-4 on page 81) displays.

2. Click on the Select button.

You are prompted to select the sprinkler head.

3. Select the sprinkler head of a zone that you want to query.

4. Verify/View the information listed about the zone.

5. Click on Close when finished.

Remove Zone

ADVANCED IRRIGATION ➤ ZONES ➤ REMOVE

KEY-IN COMMAND: ai remzone

The Remove Zone command allows you to delete items from an assigned P.O.C. They include the zone or heads. This assists you when modifying or revising the site information.

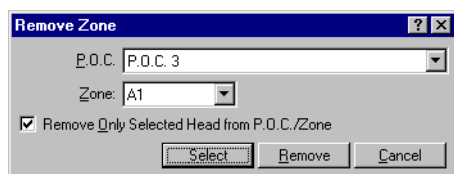


Figure 4-5 Remove Zone Dialog Box

Remove Zone Dialog Box Definitions

Option	Function
P.O.C.	Choose the point of connection from which the zone is to be removed. You have the ability to select from a list of user-defined points of connection.
Zone	Choose the zone to be removed. You have the ability to select from a list of user-defined zones.
Remove Only Selected Head from P.O.C./ Zone	You have the opportunity to remove only a selected head from the zone as opposed to removing the entire zone from the P.O.C.
Select	When you click on Select, you may pick a sprinkler head to remove from a specific zone.
Remove	Clicking on Remove will remove the selected sprinkler head/zone from the specified P.O.C.

QuickSteps

1. Select Zones → Remove.

The Remove Zone dialog box (Figure 4-5 on page 82) displays.

2. Select from the P.O.C. drop list the P.O.C. from which you want to remove the zone.

3. Select from the Zone drop list the zone to be removed and click on the Select button to select a sprinkler head from the zone you are removing.

4. Toggle off Remove Only Selected Head from P.O.C./Zone.

5. Click on Remove.

A dialog box displays, asking whether you are sure you want to remove the zone. If you want to continue, click on Yes. If you want to cancel the command, click on No.

6. Click on Cancel to close the Remove Zone dialog box.

Label Zone Heads

ADVANCED IRRIGATION → ZONES → LABEL → HEADS

KEY-IN COMMAND: ai l label head

The Label feature in **Advanced Irrigation** gives you the opportunity to assign labels to either zones or sprinkler heads. Labeling your sprinkler heads with the Zone ID clarifies the head-to-zone relationships.

Use the Label Zone Heads command to have a label with the P.O.C. information placed next to each head. This is useful when drawing lateral pipes. You are less likely to try to connect a sprinkler head from another zone into the current one. These labels are placed on an individual layer for printing/plotting flexibility.

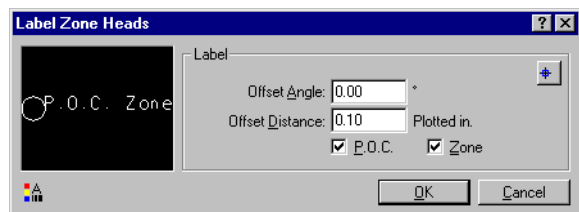


Figure 4-6 Label Zone Heads Dialog Box

Label Zone Heads Dialog Box Definitions

Option	Icon	Function
Offset Angle		The Offset Angle is the angle at which the label is placed in the drawing. For example, if you set the angle at 0, the label would come in on the right side of the head horizontally. If you wanted it straight up, it would be set to 90 and straight down would be 270.
Offset Distance		This is the distance from the edge of the head to where the label starts.
P.O.C.		When you toggle on this option, the label that you specified for the P.O.C. is placed next to the sprinkler head.
Zone		When you toggle on this option, the label that you specified for the zone is placed next to the sprinkler head.
Text Properties		Click on this icon to display the Text CAD Settings dialog box. This dialog box contains options to edit/verify the layer/level, color, text style, unit, and plotted size.

QuickSteps

1. **Select Zones → Label → Heads.**

The Label Zone Heads dialog box (Figure 4-6 on page 83) displays.

2. **Set the Offset Angle to 0 and the Offset Distance to . 1.**

3. **Toggle on the P.O.C. and the Zone options and click on OK.**

You are prompted to select objects.

4. **Select the heads that you want to label.**

5. **Right-click to finish the selection.**


6. **Click on Cancel to close the Label Zone Heads dialog box.**

Label Zone

ADVANCED IRRIGATION ⇨ ZONES ⇨ LABEL ⇨ ZONE

KEY-IN COMMAND: ai l label zone

The purpose of this command is to insert a label tag that identifies a zone and indicates the total discharge required for that zone. The pipe size of the lateral connected to the valve is also displayed. This is an enhanced label that shows what valve is being used; all associated heads to that flow/zone can be easily queried.

 *You must already have sized the pipe and located a valve in your drawing before you can attach a zone label.*

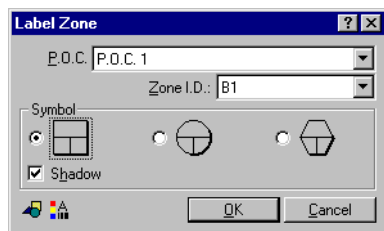




Figure 4-7 Label Zone Dialog Box

Label Zone Dialog Box Definitions

Option	Icon	Function
P.O.C.		This drop list allows you to select a point of connection.
Zone I.D.		Select the zone that you are in the process of labeling from the list of user-defined Zone I.D. descriptions.
Symbol		Select the zone tag that you want to insert into the drawing.
Shadow		This option darkens the lower right corner of the symbol. This gives the appearance of a shadow.
CAD Settings		The settings in the CAD Settings dialog box provide options for setting layer/level, color, linetype, and width.
Text Properties		Click on this icon to display the Text CAD Settings dialog box. This dialog box contains options to edit/verify the layer/level, color, text style, unit, and plotted size.

QuickSteps

1. **Select Zones → Label → Zone.**

The Label Zone dialog box (Figure 4-7 on page 84) displays.

2. **Select the P.O.C. to which the zone is assigned.**
3. **Select the Zone ID that you want to label.**
4. **Select the symbol that you want to use.**
5. **Toggle on Shadow.**
6. **Click on OK and select the insertion point for the zone label.**

The zone label is placed.

7. **Click on Cancel to terminate the command and close the Label Zone dialog box.**

Water Usage Schedule

ADVANCED IRRIGATION ⇨ ZONES ⇨ WATER USAGE ⇨ SCHEDULE

KEY-IN COMMAND: ai schedul e

The purpose of the Water Usage Schedule command is to calculate the precipitation rate and operating times in minutes per day, as well as to generate a report based on these calculations.

Calculations are also based on a variable number of days per week that you can apply later. You must have already sized the pipe and located at least one valve in your drawing before you can run the Water Usage Schedule command.

Using this information, you can produce a schedule which can be used to program your controller.

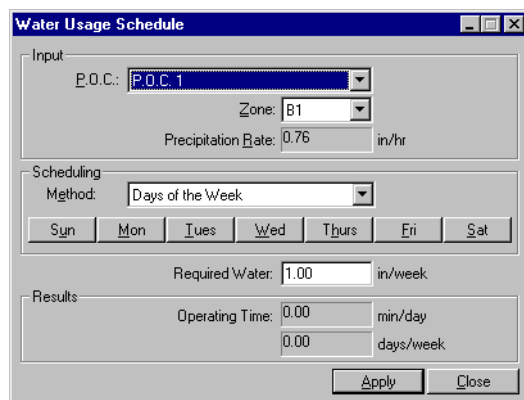
The screenshot shows the 'Water Usage Schedule' dialog box. It has three main sections: 'Input', 'Scheduling', and 'Results'. In the 'Input' section, 'P.O.C.' is set to 'P.O.C. 1', 'Zone' is 'B1', and 'Precipitation Rate' is '0.76 in/hr'. In the 'Scheduling' section, 'Method' is 'Days of the Week', and there are buttons for 'Sun', 'Mon', 'Tues', 'Wed', 'Thurs', 'Fri', and 'Sat'. 'Required Water' is set to '1.00 in/week'. In the 'Results' section, 'Operating Time' is '0.00 min/day' and '0.00 days/week'. There are 'Apply' and 'Close' buttons at the bottom.

Figure 4-8 Water Usage Schedule Dialog Box

Water Usage Schedule Dialog Box Definitions

Option	Function
P.O.C.	Use this drop list to choose the active point of connection from which to calculate water usage. You have the ability to select from a list of user-defined points of connection.
Zone	Select the zone that you are in the process of labeling from the list of user-defined Zone ID descriptions.
Precipitation Rate	This value is calculated based on the sprinkler flow rate multiplied by 96.25, divided by the total square foot of coverage.

Water Usage Schedule Dialog Box Definitions

Option	Function
Method	You have two options for setting up the scheduling. They are: Days of the Week and Every X Days. The Days of the Week option allows you to select specific days on which the zones will be operating, while the Every X Days option allows you to specify a watering availability of every other day.
Required Water	This option allows you to specify the amount of water that is needed for the particular area.
Operating Time	min/day: This is the calculated time, in minutes, based on previously entered information. days/week: These are the days of the week that the system has to operate to achieve the desired amount of water per week.

QuickSteps

1. **Select Zones → Water Usage → Schedule.**
The Water Usage Schedule dialog box (Figure 4-8 on page 85) displays.
2. **Select the current P.O.C. for which you want to run the Water Usage Schedule command.**
3. **Select the zone to create the schedule for.**
4. **Select the Days of the Week scheduling method and select Tuesday, Thursday, and Saturday (or any three days of your choice).**
5. **Type 1 in the Required Water edit field.**
6. **Review the Operating Time and the number of days in the Results section.**
7. **Click on Apply to assign the scheduling information to the selected zone.**
8. **Click on Close to terminate the command and close the Water Usage Schedule dialog box.**

Water Usage Report

ADVANCED IRRIGATION ⇨ ZONES ⇨ WATER USAGE ⇨ REPORT

KEY-IN COMMAND: ai report

The purpose of the Water Usage Report command is to produce a report based on the calculations in the Water Usage Schedule command. Using this information, you can produce a schedule, which can be used to program your controller. You are able to include a wide variety of information in the report format.

- ✓ **You must already have sized the pipe and located at least one valve in your drawing before you can run the Water Usage Report command.**

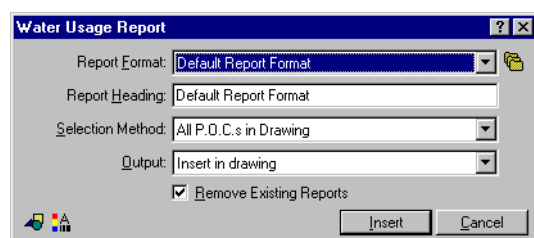





Figure 4-9 Water Usage Report Dialog Box

Water Usage Report Dialog Box Definitions

Option	Icon	Function
Report Format		<p>You have the ability to generate as detailed a report as necessary. You have the ability to include the point of connection, Zone ID tag, precipitation rate, flow demand, weekly run time, weekly water usage, average daily water usage, valve type, valve manufacturer, valve model, valve series, and valve size.</p> <p>This information can be adjusted on the Schedule Report Setup dialog box (to access, click on the Report Format Manager icon and select New Format to create your own format or select an active report format and click on the Modify Format icon).</p>
Report Heading		This is a user-definable label or title of the generated report.
Selection Method		There are three options for selecting P.O.C.s to use for the report: Selected P.O.C.s, All P.O.C.s in Drawing, and P.O.C.s on Layers.
Output		You have the ability to write the report information in a variety of options. You may place it into the drawing or export it to an .XLS file format, a .CSV file format, or a .TXT file. An .XLS file is directly importable into Microsoft's Excel spreadsheet program. A .CSV file may be imported into other database/estimating programs. A .TXT file can be imported into Microsoft's Word program for further editing.
Remove Existing Reports		This option allows you to have the software automatically remove previously generated reports that have been placed into the drawing.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		Click on this icon to display the Text CAD Settings dialog box. This dialog box contains options to edit/verify the layer/level, color, text style, unit, and plotted size.
Insert		Click on Insert to either place the report into the drawing or write the report in one of the export formats.

QuickSteps

- Select Zones → Water Usage → Report.**
The Water Usage Report dialog box (Figure 4-9 on page 86) displays.
- Select a report format from the Report Format drop list or click on the Report Format Manager to edit or create report formats.**
- Type a heading for the report in the Report Heading edit field.**
- Choose the Selected P.O.C.s option from the Selection Method drop list.**
- Choose the Insert in drawing option from the Output drop list.**
- Toggle on the Remove Existing Reports option.**
- Click on the CAD Settings or Text Properties icons if you want to adjust any of those settings.**
- Click on Insert.**
You are prompted to select objects.
- Select the desired P.O.C.s and press Enter.**
You are prompted to select an insertion point for the report.
- Click in the drawing to designate the insertion point for the report.**
The report is placed in the drawing.
- Click on Cancel to close the Water Usage Report dialog box.**

Locate Wire

KEY-IN COMMAND: ai wi re

The Locate Wire command uses the same principle as the Locate Lateral/Mainline commands. You have the ability to select the type of wire to be used in the design from an extensive database of wire types and gauges. The database is completely customizable and modifiable. See *Wire Database Editor* on page 130 for more information.

The wire that is placed in the design is automatically calculated and is listed in the Irrigation Equipment table. You do not have to calculate the amount of wire by hand.

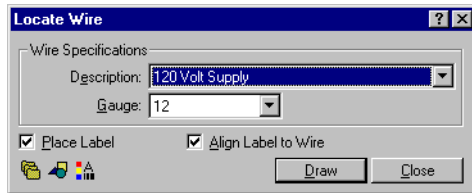


Figure 4-10 Locate Wire Dialog Box

Locate Wire Dialog Box Definitions

Option	Icon	Function
Description		The Description drop list shows the type of wire to be used in this scenario. This list is a user-definable/customizable database of wire types.
Gauge		Select the desired gauge of wire to be used in this application. This is also a customizable database of information.
Place Label		Selecting this option results in the software automatically placing a label on the sections of wire as they are placed into the drawing. This holds the same practicality as a pipe label – either reduces the confusion in different wire/pipe sizes.
Align Label to Wire		This option is active when the Place Label option is selected. When this option is selected, the label is placed in alignment with the wire, regardless of the wire's angle. If this option is not selected, the label's text remains horizontal and does not follow the alignment of the wire.
Wire Database Editor		Click on this icon to display the Wire Database Editor dialog box. The options in this dialog box enable you to create, modify, or delete gauge entries and descriptions in the database.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item is placed on, as well the color and linetype.
Text Properties		Click on this icon to display the Text CAD Settings dialog box. This dialog box contains options to edit/verify the layer/level, color, text style, unit, and plotted size.
Draw		Click on Draw to place the wire into the drawing. You are prompted to select the start point and subsequent points for the wire placement in the drawing.

QuickSteps

1. Select Zones → Locate Wire.

The Locate Wire dialog box (above) displays.

2. Select a type of wire from the Description drop list. Select a logical type for the current application.

3. Select the appropriate wire gauge for your project.

4. Toggle on Place Label.

5. Click on Draw.

You are prompted to select the start point of the wire.

6. Left click to select both the beginning and end points of your wire. Right click to end the drawing of wire.

7. Click on Close to terminate the command and close the Locate Wire dialog box.

PIPES

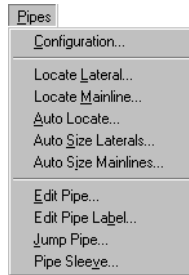


Figure 5-1 Pipes Menu

In this chapter:

<i>Pipe Configuration</i>	92
<i>Draw Lateral Pipe</i>	94
<i>Draw Mainline Pipe</i>	95
<i>Auto Layout</i>	97
<i>Autosize Laterals</i>	98
<i>Autosize Mainlines</i>	100
<i>Edit Existing Pipe</i>	102
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Pipe Configuration



ICON:

KEY-IN COMMAND: ai pi peconfi g

The Pipe Configuration command allows you to choose the default lateral and mainline pipes to use when placing these pipes into the drawing. You can choose which pipe type to use and what minimum size to use. You also have the ability to specify how the label will be placed on the pipe and whether to align that label with the pipe. All of the pipes listed here are listed in the Pipe Database Editor. See *Pipe Database Editor* on page 132 for more information.

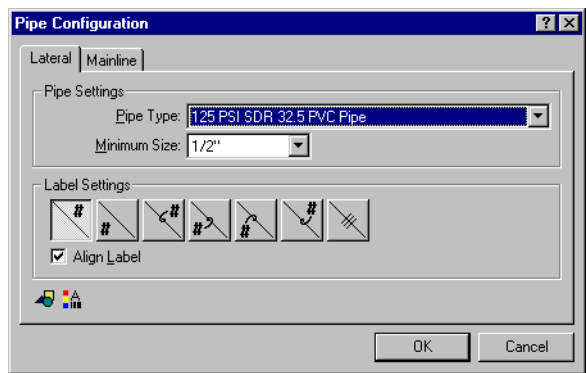


Figure 5-2 Pipe Configuration Dialog Box – Lateral Tab

Pipe Configuration Dialog Box – Lateral Tab Definitions

Option	Icon	Function
Pipe Type		You have the option of selecting the type of pipe to be used in the design. Select from a wide variety of predefined pipe types. This is a user-definable/customizable database.
Minimum Size		Select the smallest size of pipe that you want the software to use when running the Auto Size Pipe command.
Align Label		Toggle on this option to position the label based on the position of the pipe.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on as well the color, style and height.

QuickSteps

1. Select Pipes → Configuration.

The Pipe Configuration dialog box (above) displays.

2. Click on the Lateral tab.

3. Select the type of pipe that you want to use for your lateral pipes in this drawing.

4. Select the minimum pipe size of your choice.

This allows you to customize the pipe size that the software uses when auto sizing the lateral pipes. This is only in effect during an Auto Size Lateral routine.

5. **Select the style of pipe label that you want to use.**
6. **Make sure that the Align Label toggle is off.**
This rotates all labels to a uniform 0 degrees, which is horizontal to the screen.
7. **Click on OK to save your current settings.**

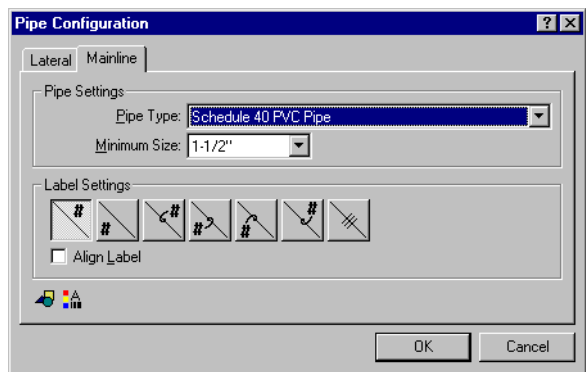


Figure 5-3 Pipe Configuration Dialog Box – Mainline Tab

Pipe Configuration Dialog Box – Mainline Tab Definitions

Option	Icon	Function
Pipe Type		You have the option of selecting the type of pipe to be used in the design. Select from a wide variety of predefined pipe types. This is a user-definable/customizable database.
Minimum Size		Select the smallest pipe size that you want the software to use when running the Auto Size Pipe command.
Align Label		Toggle on this option to position the label based on the position of the pipe.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on, as well the color, style, and height.

QuickSteps

1. **Select Pipes → Configuration.**
The Pipe Configuration dialog box (Figure 5-2 on page 92) displays.
2. **Click on the Mainline tab.**
3. **Select the pipe type that you want to use for your mainline pipes in this drawing.**
4. **Select the minimum pipe size of your choice.**
This allows you to customize the size of pipe that the software uses when auto sizing the lateral pipes. This is only in effect during an Auto Size Lateral routine.
5. **Select the style of pipe label that you want to use.**
6. **Make sure that the Align Label toggle is off.**
This rotates all labels to a uniform 0 degrees, which is horizontal to the screen.
7. **Click on OK to save your current settings.**

Draw Lateral Pipe

ADVANCED IRRIGATION ⇨ PIPES ⇨ LOCATE LATERAL



KEY-IN COMMAND: ai lateral

The purpose of the Draw Lateral Pipe command is to allow you to manually lay out the lateral pipes within a zone. Often, due to variations in terrain, obstacles (both natural and man-made), or simply the desires of the designer, it is desirable to lay out the location of the pipes manually rather than having the computer perform this task. When laying out pipe, you need to indicate which sprinkler heads the pipes tie into, where they connect to other pipes, and where they tie into the mainline (where the valve is located).

If you do not know the size of the lateral as you lay out your design, simply select a size, then use the Auto Size Laterals command later.

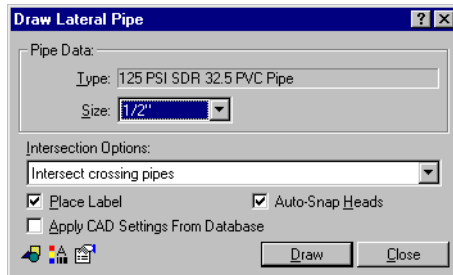





Figure 5-4 Draw Lateral Pipe Dialog Box

Draw Lateral Pipe Dialog Box Definitions

Option	Icon	Function
Type		This field lists the pipe type to be used for this command. If you want to use a different pipe, click on the Pipe Configuration icon to select from the pipe database. See <i>Pipe Database Editor</i> on page 132 for more information.
Size		Select the size of the pipe to be placed into the drawing. Select from a predefined list of sizes. You have the ability to add any additional sizes needed.
Intersection Options		Intersect crossing pipes: This option allows you to cross lateral pipes and “connect” to crossing pipes in that zone. If this option is toggled on, pipes break at intersections. Do not intersect crossing pipes: This option allows you to cross lateral pipes without “connecting” to crossing pipes in that zone.
Place Label		This option places a size label on the pipe as it is placed into the drawing. The label is placed on its own layer so it can be shown/hidden for printing/plotting purposes.
Apply CAD Settings From Database		Toggling on this option applies CAD settings from the pipe database to the drawing.
Auto-Snap Heads		This option, when toggled on, allows the pipe to automatically attach to the sprinkler head if the point that you select is close to the head symbol. The distance that enacts the snap is roughly twice the size of the head symbol.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well as the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on as well the color, style and height.

Draw Lateral Pipe Dialog Box Definitions

Option	Icon	Function
Pipe Configuration		This option gives you direct access to the Pipe Configuration settings. This prevents you from having to exit the command and open the Pipe Configuration settings separately.
Draw		Click on Draw to place the lines representing the lateral lines into the drawing. If you have utilized the Auto-Snap Heads option, you have a PIC box at the crosshairs to assist you with selecting the pipe placement.

QuickSteps

1. Select Pipes → Locate Lateral.

The Draw Lateral Pipe dialog box (Figure 5-4 on page 94) displays.

2. Leave the size at ½" if you will be utilizing the Auto Pipe Sizing routine later in the drawing.

3. Select Intersect crossing pipes from the Intersection Options drop list.

4. Toggle off Place Label if you will utilize the Auto Pipe Sizing routine later in the drawing.

5. Toggle off Apply CAD Settings From Database and toggle on Auto-Snap Heads.

6. Click on Draw.

You are prompted to select the pipe end points.

7. Left click on the point where you want to start the lateral pipe.

8. Left click on the end point.

You will be connecting the sprinkler heads that you have previously placed into the drawing. Use the same methodology as you would if designing by hand. The principle is the same.

9. Right click to end the command. Click on Draw again to draw more laterals, or click on Close to terminate the command and close the Draw Lateral Pipe dialog box.

Draw Mainline Pipe

ADVANCED IRRIGATION ⇨ PIPES ⇨ LOCATE MAINLINE



KEY-IN COMMAND: ai mai n

The purpose of the Draw Mainline Pipe command is to graphically show how the water gets from the sources (such as a water meter near the property line or connection point to the domestic water supply) out to each of the individual zones and their respective valves. Graphically, mainlines are usually shown as a heavier linetype than the laterals, and may also be dashed to differentiate their use. Usually, the mainline is the same type of pipe material found elsewhere in an irrigation system, but with thicker walls. Since it has a different function however, it may be shown differently for graphical illustration. The mainline must be at least as large as the largest diameter lateral found on the project.

If you are unsure of the size of mainline you may need as you lay out your design, simply select a size and then use the Auto Size Mainlines command later.

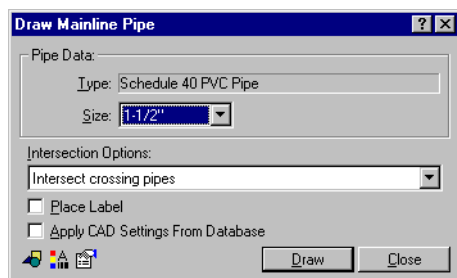


Figure 5-5 Draw Mainline Pipe Dialog Box

Draw Mainline Pipe Dialog Box Definitions

Option	Icon	Function
Type		This field lists the pipe type to be used for this command. If you want to use a different pipe, click on the Pipe Configuration icon to select from the pipe database.
Size		Select the size of the pipe to be placed into the drawing. Select from a predefined list of sizes. You have the ability to add any additional sizes needed.
Intersection Options		<p>Intersect crossing pipes: This option allows you to cross lateral pipes and “connect” to crossing pipes in that zone. If this option is toggled on, pipes break at intersections.</p> <p>Do not intersect crossing pipes: This option allows you to cross lateral pipes without “connecting” to crossing pipes in that zone.</p>
Place Label		This option places a size label on the pipe as it is placed into the drawing. The label is placed on its own layer so it can be shown/hidden for printing/plotting purposes.
Apply CAD Settings From Database		Toggling on this option applies CAD settings from the database to the drawing.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well as the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on as well the color, style and height.
Pipe Configuration		This option gives you direct access to the Pipe Configuration settings. You do not have to exit the command and open the Pipe Configuration settings separately.
Draw		Click on Draw to place the lines representing the mainline lines into the drawing. If you have utilized the Auto-Snap Heads option, you have a PIC box at the crosshairs to assist you with selecting the pipe placement.

QuickSteps

1. Select Pipes → Locate Mainline.

The Draw Mainline Pipe dialog box (above) displays.

2. Leave the size at ½" if you will be utilizing the Auto Pipe Sizing routine later in the drawing.

3. Select Intersect crossing pipes from the Intersection Options drop list.

4. Toggle off Place Label if you will utilize the Auto Pipe Sizing routine later in the drawing.

5. Toggle off Apply CAD Settings From Database.

6. Click on Draw.

You are prompted to select the pipe end points.

7. Left click on the point where you want to start the mainline pipe.

8. **Left click on the end point.**

You will be connecting the sprinkler heads that you have previously placed into the drawing. Use the same methodology as you would if designing by hand. The principle is the same.

9. **Right click to end the command. Click on Draw again to draw more mainlines, or click on Close to terminate the command and close the Draw Mainline Pipe dialog box.**

Auto Layout

ADVANCED IRRIGATION ➤ PIPES ➤ AUTO LOCATE



KEY-IN COMMAND: ai autopi pe

The Auto Layout command provides you with a means to have the computer make a preliminary decision as to how the pipes in a specified zone should be routed. This command does not take into consideration obstacles or individual preferences. Thus, it should be viewed as a preliminary suggestion only. Once the computer has laid in the rough pipe layout, you should edit the locations to ensure an adequate design.

If you want to create a U-shaped layout or have pipes at odd angles, you should lay out those pipes manually.

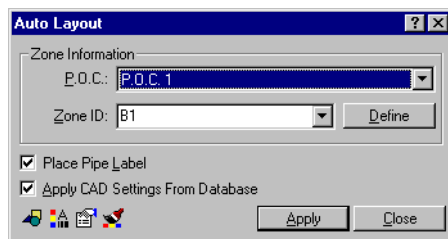






Figure 5-6 Auto Layout Dialog Box

Auto Layout Dialog Box Definitions

Option	Icon	Function
P.O.C.		Select from a listing of defined P.O.C.s from which to pull the necessary water availability. You have the ability to assign the sprinkler heads to a specific point of connection. For more information on creating a P.O.C., refer to <i>P.O.C.</i> , which begins on page 1.
Zone ID		Select the zone that you are in the process of doing a pipe layout in from the list of user-defined Zone ID descriptions.
Define		Click on this button to assign a zone ID to the group of heads that are not yet defined.
Place Pipe Label		This option places a size label on the pipe as it is placed into the drawing. The label is placed on its own layer so it can be shown/hidden for printing/plotting purposes.
Apply CAD Settings From Database		Toggling on this option applies CAD settings from the database to the drawing.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on, as well the color, style, and height.

Auto Layout Dialog Box Definitions

Option	Icon	Function
Pipe Configuration		This option gives you direct access to the Pipe Configuration settings. You do not need to exit the command and open the Pipe Configuration settings separately.
Select Head's Zone		When you click on this icon, the selected head's P.O.C. and Zone ID information display in the Auto Layout dialog box.

QuickSteps

1. **Select Pipes → Auto Locate.**
The Auto Layout dialog box (Figure 5-6 on page 97) displays.
2. **Select the P.O.C. that the zone is assign to.**
3. **Select the ID of the zone in which you are automatically placing pipes.**
4. **Toggle on the Place Label option and toggle off the Apply CAD Settings From Database option.**
5. **Click on Apply.**
6. **Select the location of the valve and the direction in which the pipe will run from the valve.**
7. **Click on Close to terminate the command and close the Auto Layout dialog box.**

Autosize Laterals

ADVANCED IRRIGATION ➤ PIPES ➤ AUTO SIZE LATERALS

ICON: 

KEY-IN COMMAND: ai si zel at

The purpose of the Autosize Laterals command is to take an initial pipe layout, convert it to appropriately-sized pipe objects, and label the objects for graphic purposes at the same time. This makes it easy for you to convey to the contractor what pipe sizes should be used in the various parts of the pipe layout.

Once the Autosize Laterals dialog box is filled out, you are prompted to select the location of the valve. The program then reads the pipe branches and automatically sizes them.

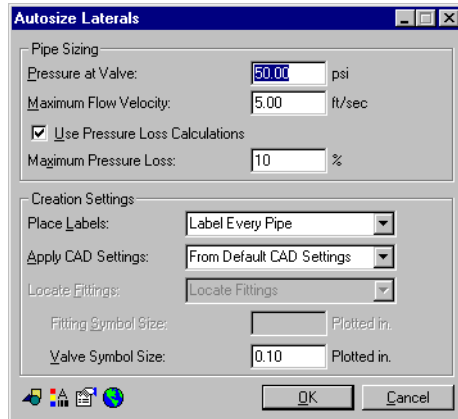


Figure 5-7 Autosize Laterals Dialog Box

Autosize Laterals Dialog Box Definitions

Option	Icon	Function
Pressure at Valve		Enter the available pressure at the valve for this particular zone. This value is obtained after the calculation of all the pressure loss items between the valve and the water source.
Maximum Flow Velocity		This value is the maximum flow velocity of water through the pipes.
Use Pressure Loss Calculations		You have the option of enabling the software to use pressure loss calculations when sizing the pipe. When this is enabled, a check is made to make sure the maximum pressure loss specified is not exceeded for the run of pipe.
Maximum Pressure Loss		In this edit field, enter the maximum amount of pressure loss acceptable.
Place Labels		<p>Label Every Pipe: This option allows you to place a label on every pipe segment. Depending on the detail of the site, this may be acceptable.</p> <p>Label Transition Only: This option places labels only where the pipe size changes. This option is the preferred method if the drawing has a lot of detail, or you want to keep it cleaner in appearance.</p> <p>Do Not Label Pipe: This option does not place labels.</p>
Apply CAD Settings		You may apply CAD settings from the database or use the default CAD settings.
Locate Fittings		This option automatically places fittings through the runs of pipe. These would only be the Ts and elbows and would not include the assemblies at the base of each sprinkler head.
Fitting Symbol Size		The Fitting Symbol Size controls the size of your fitting symbol. The size is in plotted inches. If you set it at .1, the plotted size is one tenth of an inch in diameter if your plot scale is set to 1" = 10'.
Valve Symbol Size		This controls the size of your irrigation valve symbol. The size is in plotted inches. If you set it at .1, the plotted size is one tenth of an inch in diameter if your plot scale is set to 1" = 10'.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on, as well the color, style, and height.
Pipe Configuration		This option gives you direct access to the Pipe Configuration settings. You do not have to exit the command and open the Pipe Configuration settings separately.
Active Surface Model Settings		Clicking on this icon displays a current list of defined surface models.

QuickSteps

1. Select Pipes → Auto Size Laterals.

The Autosize Laterals dialog box (Figure 5-7 on page 99) displays.

2. Enter the psi for the Pressure at Valve.

3. Enter a value for the Maximum Flow Velocity.

4. Toggle on the Use Pressure Loss Calculations option.

5. Set the Maximum Pressure Loss value to 10.

6. Select the Label Transition Only option from the Place Labels drop list.

7. Use the default CAD settings.

8. Set the Valve Symbol Size to . 15.

This places the valve in the drawing at 1.5 feet in diameter in a 1:10 scale drawing.

9. Click on OK and, using any of the selection methods, select the sprinkler heads and pipes in the selected zone. Right click when you have completed your selection.

You are prompted for the location of the valve.

10. Pick on a stub of lateral line for the placement of the valve.

The pipes are removed and the software calculates the proper sizes and replaces them in the drawing with the proper sizes labeled.

11. Click on Cancel to close the Autosize Laterals dialog box.

Autosize Mainlines

ADVANCED IRRIGATION ⇨ PIPES ⇨ AUTO SIZE MAINLINES



KEY-IN COMMAND: ai si zema i n

The purpose of the Autosize Mainlines command is to take an initial pipe layout, convert it to the appropriately sized pipe objects, and label the objects for graphical purposes at the same time. This makes it easy for you to convey to the contractor which pipe sizes should be used in the various parts of the pipe layout.

Mainlines are always sized such that they are as large as the largest lateral that exists on any of the zones they are feeding. You can have the appropriate maximum pressure loss accounted for when sizing the mainlines.

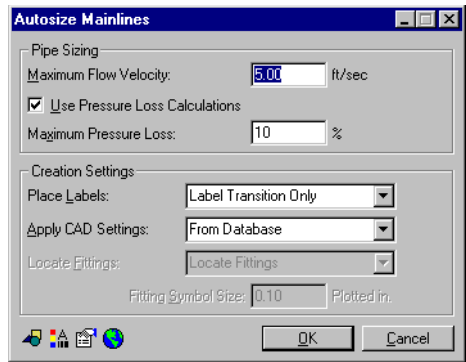


Figure 5-8 Autosize Mainlines Dialog Box

Autosize Mainlines Dialog Box Definitions

Option	Icon	Function
Maximum Flow Velocity		This value represents the maximum velocity flow of water through the pipes.
Use Pressure Loss Calculations		Toggle this option on to include the pressure loss calculations in the sizing of the mainlines.
Maximum Pressure Loss		In this edit field, enter the maximum amount of pressure loss acceptable.
Place Labels		Label Every Pipe: This option allows you to place a label on every pipe segment. Depending on the detail of the site, this may be acceptable. Label Transition Only: This option places labels only where the pipe size changes. This option is the preferred method if the drawing has a lot of detail, or you want to keep it cleaner in appearance. Do Not Label Pipe: This option does not place labels.
Apply CAD Settings		You may apply CAD settings from the database or use the default CAD settings.
Locate Fittings		Toggle this option on to automatically place fittings through the runs of pipe. These include only the Ts and elbows, and do not include the assemblies at the base of each sprinkler head.
Fitting Symbol Size		The Fitting Symbol Size value controls the size of your fitting symbol. The size is in plotted inches. If you set it at .1, the plotted size is one tenth of an inch in diameter if your plot scale is set to 1" = 10'.
CAD Settings		Click on this icon to display the CAD Settings dialog box. The settings in the CAD Settings dialog box control the layer on which an item is placed, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on, as well the color, style, and height.
Pipe Configuration		This option gives you direct access to the Pipe Configuration settings. You do not have to exit the command and open the Pipe Configuration separately.
Active Surface Model Settings		Clicking on this icon displays a current list of defined surface models.

QuickSteps

1. Select Pipes → Auto Size Mainlines.
The Autosize Mainlines dialog box (above) displays.

2. Type an appropriate value in the Maximum Flow Velocity edit field.
3. Toggle on the Use Pressure Loss Calculations option.
4. Set the Maximum Pressure Loss value to 10.
5. Select the Label Transition Only option from the Place Labels drop list.
6. Select the From Default CAD Settings option from the Apply CAD Settings drop list.
7. Click on OK.
8. Using any of the selection methods, select the zone valves, sprinkler heads, mainlines, and P.O.C. in the drawing.
9. Right click when you have completed your selection.
The pipes are removed and the software calculates the proper sizes and replaces them in the drawing with the proper sizes labeled.
10. Click on Cancel to end the command and close the Autosize Mainlines dialog box.

Edit Existing Pipe

ADVANCED IRRIGATION ➤ PIPES ➤ EDIT PIPE

KEY-IN COMMAND: ai edi tpi pe

The purpose of the Edit Existing Pipe command is to change one type of pipe to another type of pipe. In some instances, you may simply want to change from CL160 PVC to CL200 PVC or the same pipe type. In other instances, you may want to change from 1/2" pipe to 3/4" pipe. This command allows you to edit existing pipes, material, and size. The label, if it exists, is automatically updated.

It also allows you to view, not edit, the calculation information for the selected pipe.

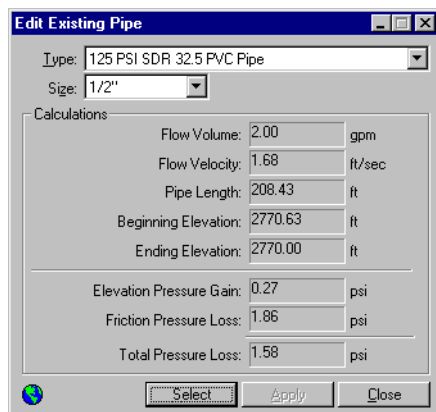



Figure 5-9 Edit Existing Pipe Dialog Box

Edit Existing Pipe Dialog Box Definitions

Option	Icon	Function
Type		The pipe type displayed in the drop list is the current type of pipe selected. You have the ability to change the current type if you want. You have access to all the pipe types in the pipe database.
Size		The size displayed is the current size of the pipe selected. You have the ability to change the current size if you want. You have access to all the pipe sizes in the pipe database in this list.

Edit Existing Pipe Dialog Box Definitions

Option	Icon	Function
Flow Volume		The Flow Volume lists the amount of water flowing through the selected pipe. This value is not editable in this command.
Flow Velocity		This value is the current velocity of water in the pipe (ft/sec or m/sec). This value is not editable in this command.
Pipe Length		The length of the selected pipe is displayed in this edit field. This value is not editable in this command.
Beginning Elevation		The elevation at the beginning of the selected pipe is displayed in this edit field. This value is not editable in this command.
Ending Elevation		The elevation at the end of the selected pipe is displayed in this edit field. This value is not editable in this command.
Elevation Pressure Gain/Loss		The change in pressure caused by the difference of elevation in the beginning and ending points is displayed in this edit field. This value is not editable in this command.
Friction Pressure Loss		The friction loss for the selected pipe is displayed in this edit field. This value is not editable in this command.
Total Pressure Loss		This value is a combination of the losses in friction and elevation change. This value is not editable in this command.
Active Surface Model Settings		Clicking on this icon displays a current list of defined surface models. The selected surface model will be used to calculate the head loss/gain in the pipe.
Select		Click on Select to pick the section of pipe to be edited. Only one section of pipe may be selected at a time.

QuickSteps

1. **Select Pipes → Edit Pipe.**
The Edit Existing Pipe dialog box (Figure 5-9 on page 102) displays.
2. **Click on the Select button and click on a segment of pipe that you want to edit.**
3. **Review/change the type and/or size of pipe.**
4. **Review the remaining data.**
5. **Click on Apply to save the changes and update the drawing.**
6. **Click on Close to terminate the command and close the Edit Existing Pipe dialog box.**

Edit Pipe Label

ADVANCED IRRIGATION ⇨ PIPES ⇨ EDIT PIPE LABEL

KEY-IN COMMAND: ai edi tpi pel bl

The purpose of the Edit Pipe Label command is to change from one label style to another in order to make your plan appear more graphically pleasing. For example, if you have labels that conflict with the pipe locations, you may want to mirror them, rotate them, or select a different style so that the plan becomes more readable. The pipe data does not change – only the labeling style does. To change the pipe data, use the Edit Pipe command. For more information, see *Edit Existing Pipe* on page 102.

Often when you are automatically sizing pipes, the labels need to be moved or switched to the other side of the pipe to make them more graphically readable. Changing the pipe label style can accomplish this.

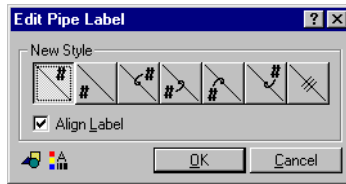


Figure 5-10 Edit Pipe Label Dialog Box

Edit Pipe Label Dialog Box Definitions

Option	Icon	Function
Align Label		Toggle on this option to align the label to the pipe.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on, as well the color, style, and height.

QuickSteps

- 1. Select Pipes → Edit Pipe Label.**
The Edit Pipe Label dialog box (above) displays.
- 2. Select the new label style that you would like to use in the drawing by left clicking on the appropriate icon.**
- 3. Click on OK to place the new label style into your drawing.**
You are prompted to select objects.
- 4. Select the label that you would like to edit and right click.**
The label is modified to the new style settings.
- 5. Click on Cancel to terminate the command and close the Edit Pipe Label dialog box.**

Insert Jump Pipe



ICON:

KEY-IN COMMAND: ai j ump

The purpose of the Insert Jump Pipe command is to place an arc over two lines that appear to intersect, but which are not connected in the real world. This graphically shows that the lines in fact might cross,

but they are not related to each other. In irrigation plans, this is often the case with pipes that might pass within a couple inches of each other.

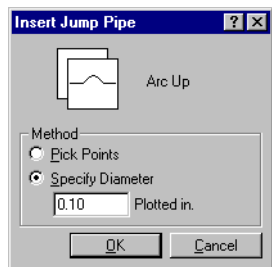


Figure 5-11 Insert Jump Pipe Dialog Box

Insert Jump Pipe Dialog Box Definitions

Option	Function
Arc Up/Down	This option allows you to specify the direction of the jumpline arc. You may choose Arc Up or Arc Down by picking on the image.
Pick Points	This method allows you to select the beginning and ending points of the jumpline arc. This gives you complete control of the placement of the jumpline.
Specify Diameter	This option allows you to give the exact size of the jumpline arc. Using this option gives your jumplines a more uniform/professional look.

QuickSteps

- Select Pipes → Jump Pipe.**
The Insert Jump Pipe dialog box (above) displays.
- Select Arc Up or Arc Down.**
- Turn on the Specify Diameter radio button and set the Plotted Inches to .5, or a value of your choice.**
This makes the arc for the jump pipe one half inch in diameter.
- Click on OK.**
You are prompted to select the pipe to jump.
- Select the pipe to jump.**
You are prompted to select the insertion point.
- Select the point on which to place the jump.**
The Jump Pipe is inserted in your drawing.
- Click on Cancel to terminate the command and close the Insert Jump Pipe dialog box.**

Pipe Sleeve

KEY-IN COMMAND: ai sleeve

The Pipe Sleeve command locates pipe sleeves in your drawing. This is commonly used in a design when placing irrigation pipes under hard surfaces such as sidewalks and driveways. When the size is specified, the totals display in the irrigation table.

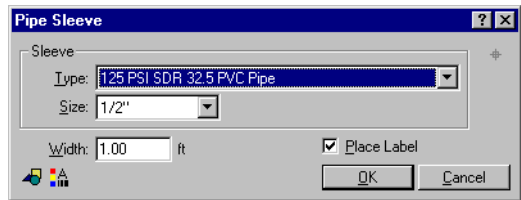


Figure 5-12 Pipe Sleeve Dialog Box

Pipe Sleeve Dialog Box Definitions

Option	Icon	Function
Type		You have the option of selecting the type of pipe to use in the design. Select from a wide variety of predefined pipe types. This is a user-definable/customizable database. See <i>Pipe Database Editor</i> on page 132 for more information.
Size		Select the size of the pipe to be placed into the drawing. Select from a predefined list of sizes. You have the ability to add any additional sizes needed.
Width		The Width edit field allows you to specify the total width of the pipe sleeve in drawing units. For example, if you set the Width at 1, the lines depicting the pipe sleeve would be one foot apart.
Place Label		This option places a size label on the pipe as it is placed in the drawing. The label is placed on its own layer so it can be shown/hidden for printing/plotting purposes.
CAD Settings		The settings in the CAD Settings dialog box control the layer that an item will be placed on, as well the color and linetype.
Text Properties		The settings in the Text CAD Settings dialog box control the layer that the text will be placed on, as well the color, style, and height.

QuickSteps

1. **Select Pipes → Pipe Sleeve.**

The Pipe Sleeve dialog box (Figure 5-12 on page 106) displays.

2. **Select the type of pipe to be used for the sleeve from the drop list of pipe types.**

3. **Select the appropriate pipe sleeve size.**

4. **Type the distance that you would like between the pipelines.**

5. **Toggle on Place Label.**

6. **Click on OK.**

7. **Select the beginning and ending points of the pipe sleeve.**

You are prompted to select the end point of the leader line.

8. **Select the end point of the leader line and the label insertion point.**

The pipe sleeve and label are inserted in your drawing.

9. **Click on Cancel to terminate the command and close the Pipe Sleeve dialog box.**

DRIP

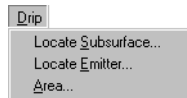


Figure 6-1 Drip Menu

The Drip menu contains commands related to designing both traditional drip systems with emitters and spaghetti tubing intended to water individual plants, as well as subsurface drip systems used for covering areas.

In this chapter:

<i>Drip Subsurface</i>	110
<i>Emitter Location</i>	112
<i>Drip Area</i>	114

CHAPTER

6

Drip Subsurface

ADVANCED IRRIGATION ➤ DRIP ➤ LOCATE SUBSURFACE



ICON:

KEY-IN COMMAND: ai subsurf

The purpose of the Drip Subsurface command is to provide a utility for laying out Netafim-type subsurface drip irrigation systems. These systems are typically used for watering shrub beds and other areas via applying water directly to the root zone. The systems consist of two PVC pipes, one as a header and one as a footer, with flexible polyethylene (PE) pipe in between. The PE pipe is spaced between 12" and 24" apart. In the PE pipe are emitter holes (small openings in the pipe), every 12" to 24". Thus, a grid pattern can be obtained with water supplied to the soil every foot or so apart in both directions.

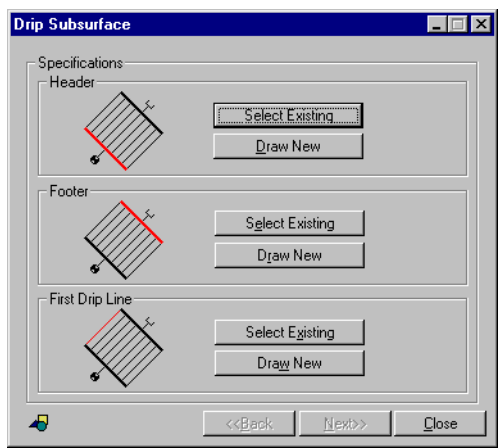


Figure 6-2 Drip Subsurface – Specifications Dialog Box

Drip Subsurface – Specifications Dialog Box Definitions

Option	Icon	Function
Header		Select an existing entity that represents the header pipe, or draw a new entity.
Footer		Select an existing entity that represents the footer pipe, or draw a new entity.
First Drip Line		Select an existing entity that represents the drip line, or draw a new entity.
Select Existing		Select an entity in the drawing that represents the object. This is helpful if you have entities in the drawing that can be used as opposed to having to draw them in first.
Draw New		This option gives you the flexibility to draw entities on the fly.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and text style. You may also define line thickness.
Back		Click on the Back button to review/modify any previously entered information.
Next		Click on the Next button to accept the information entered and move on.

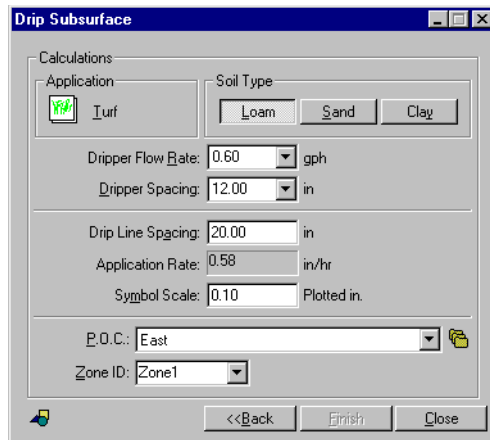





Figure 6-3 Drip Subsurface – Calculations Dialog Box

Drip Subsurface – Calculations Dialog Box Definitions

Option	Icon	Function
Application		This icon toggle allows you to select applications of shrub or turf; it also sets the Application Rate appropriately.
Soil Type		Choose from three types of soil: Loam, Sand, and Clay. This option also sets the Application Rate appropriately.
Dripper Flow Rate		Measured in gph (gallons per hour) or lph (liters per hour); as this value is modified, the Application Rate also updates.
Dripper Spacing		This option enables you to define dripper spacing. As it is updated, the Application Rate also updates automatically.
Drip Line Spacing		This value defines spacing between each drip line.
Application Rate		This value updates based on application, soil type, dripper flow, and dripper spacing.
Symbol Scale		The symbol size controls the size of your irrigation head symbol. If you set it at .1, the plotted size is one tenth of an inch in diameter if your plot scale is set to 1" = 10'.
P.O.C.		Select the P.O.C. to which this zone information will be assigned.
Zone ID		Specify a name for the zone to which the subsurface irrigation will be assigned.
CAD Settings		The settings in the CAD Settings dialog box control the layer on which an item is placed, as well the color and linetype.

QuickSteps

1. Select Drip → Locate Subsurface.

The Drip Subsurface – Specifications dialog box (Figure 6-2 on page 110) displays.

2. Click on the Select Existing button or the Draw New button for a header and select or draw the header.

3. Click on the Select Existing button or the Draw New button for a footer and select or draw the footer.

4. Click on the Select Existing button or the Draw New button for the first drip line and select or draw the first drip line.

5. Click on Next.

The Drip Subsurface – Calculations dialog box (above) displays.

6. Select the desired Application using the icon toggle.

7. Select the desired Soil Type.
8. Select the desired Dripper Flow Rate, Dripper Spacing, and Dripper Line Spacing.
9. Select a Symbol Scale.
10. Select a P.O.C. to which the information will be assigned.
11. Select a Zone ID Number from the drop list.
12. Click on Finish.

You are prompted to select a point on the header where the zone valve will attach and to select the zone valve location. Once this is done, you are prompted to select a point on the footer where the flush valve will attach and to select the flush valve location.

13. Select points for the zone valve and flush valve when prompted to do so.

The drip subsurface is completed.

Emitter Location

ADVANCED IRRIGATION ⇨ DRIP ⇨ LOCATE EMITTER

ICON: 

KEY-IN COMMAND: ai emi tter

The Emitter Location command locates individual emitters for each selected plant and draws the drip tubing if necessary. If individual emitters are shown, you may want to specify the flow rate of each emitter (shrubs might use a 1-gph emitter, while trees in the same planting area might use 2-gph emitters). The number of emitters per tree or per shrub might vary (in some cases, each shrub gets only one emitter per plant, while a tree might get three emitters). On some commercial jobs, this level of detail is required. This gives you flexibility in how you want to show the drip system on your plan.

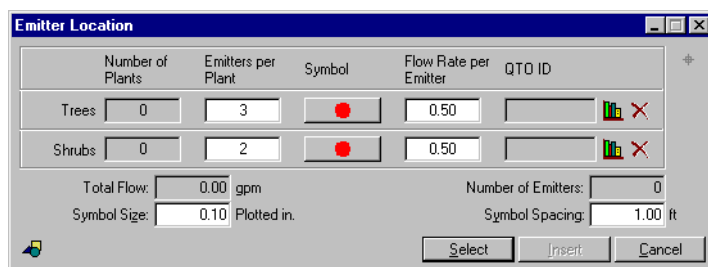






Figure 6-4 Emitter Location Dialog Box

Emitter Location Dialog Box Definitions

Option	Icon	Function
PIC		Clicking on this icon allows you to define the needed values by selecting points within the drawing.
Number of Plants		This edit field displays the number of plants chosen for the drip irrigation for trees and shrubs.
Emitters per Plant		This edit field displays the number of emitters per plant.
Symbol		Select the graphic of the symbol to insert. You can select the symbol repeatedly to change the symbol.

Emitter Location Dialog Box Definitions

Option	Icon	Function
Flow Rate per Emitter		This edit field displays the flow rate per emitter in gallons per hour or liters per hour, depending on system units.
QTO ID		This field displays the emitter's Quantity Takeoff Item ID.
QTO Library		Click on this icon to display the Manage Database dialog box (below). This dialog box displays the Item ID, Description, Units, Unit Cost, Alternate ID, Phase Code, and Item Code. You may select an existing record, create a new database entry, modify an existing entry, or delete an item. You may also set your database filters and manage subassemblies. See the Quantity Takeoff documentation for additional information on the Manage Database dialog box.
Clear QTO Tag		Click on this icon to delete the QTO tag displayed in the QTO ID field.
Total Flow		This field displays the flow emitters in gallons per minute or liters per minute.
Symbol Size		This option allows you to specify the size of the graphical symbol for the emitter.
Number of Emitters		This field displays the total number of emitters.
Symbol Spacing		This option allows you to define the distance that the emitter symbol should be placed from the plant symbol.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and text style. You may also define line thickness.

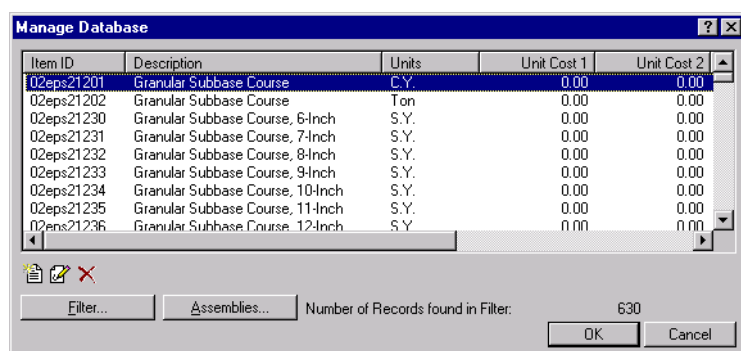


Figure 6-5 Manage Database Dialog Box

QuickSteps

1. Select Drip → Locate Emitter.

The Emitter Location dialog box (Figure 6-4 on page 112) displays.

2. Click on the Select button to select plant material from your CAD drawing and right click or press Enter.

The Emitter Location dialog box displays the totals for number of plants and emitters per plant.

3. Choose appropriate symbols for the tree and shrub emitters and verify or change the number of emitters to be located per tree/shrub.

4. Specify the flow rate per emitter.

5. Verify the symbol size and spacing.

6. Click on Insert.

Emitters are placed in the drawing.

7. Click on Cancel to close the Emitter Location dialog box.

Example

This is an example showing both the area method and the individual emitter method. Notice how you have different emitters on the trees versus the shrubs, as well as three emitters per tree and only one per shrub.

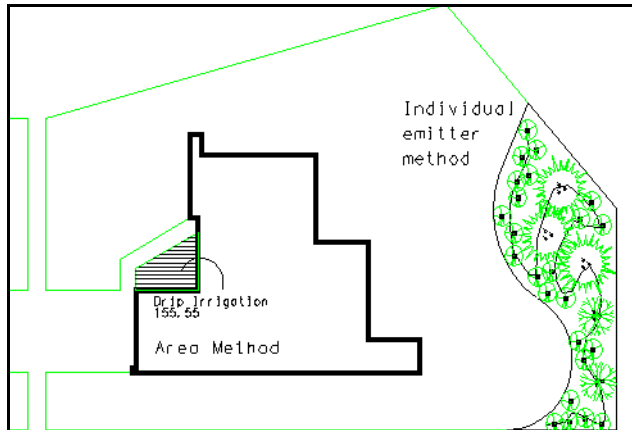


Figure 6-6 Area Method and Individual Emitter Method Example

Drip Area

ADVANCED IRRIGATION ➤ DRIP ➤ AREA



ICON:

KEY-IN COMMAND: ai area

The purpose of the Drip Area command is to locate areas on the plan that are to be specified as drip, without showing all of the actual emitters.

If an area is used, then typically a price is assigned based on square footage, and the contractor is simply responsible for installing a system in the field that works. For many residential situations, this is adequate.

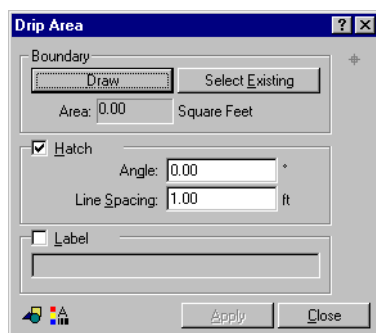





Figure 6-7 Drip Area Dialog Box

Drip Area Dialog Box Definitions

Option	Icon	Function
PIC		Clicking on this icon allows you to define the needed values by selecting points within the drawing.
Boundary		Draw: Draw a new boundary for the drip irrigation. Select Existing: Select an existing boundary. Area: This field displays the calculated area of a boundary.
Hatch		Angle: This edit field displays the angle of the hatch displayed. Line Spacing: This edit field displays the spacing of the hatch that is displayed.
Label		Type the label name you want to display in this edit field.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and text style. You may also define line thickness.
Text Properties		The options in the Text CAD Settings dialog box allow you to specify the text styles, color, and/or layers/levels for the drawing.

QuickSteps

1. **Select Drip → Area.**
The Drip Area dialog box (Figure 6-7 on page 114) displays.
2. **Click on Select Existing to select a closed polyline in the drawing.**
3. **Pick the desired polyline in CAD.**
The area is displayed in the Drip Area dialog box.
4. **Toggle on Hatch and indicate the hatch angle and spacing in CAD.**
5. **Toggle on Label and insert a text string such as Area to be dripped.**
6. **Click on Apply.**
You are prompted to pick a location for the label.
7. **Pick a location for the label in CAD and then pick the desired rotation angle in CAD.**
The drip area and label are inserted into the drawing.
8. **Click on Close to end the command.**

EQUIPMENT

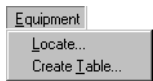


Figure 7-1 Equipment Menu

In this chapter:

Equipment Symbol	118
Equipment Table	119

Equipment Symbol

ADVANCED IRRIGATION ➤ EQUIPMENT ➤ LOCATE

KEY-IN COMMAND: ai equi p

The Equipment Symbol command is used to place irrigation equipment symbols that are not otherwise accounted for in an irrigation design. Symbols such as sprinkler heads, valves, etc., that are located elsewhere are not duplicated here. However, symbols such as filters, backflow preventers, and detail components are available from this menu.

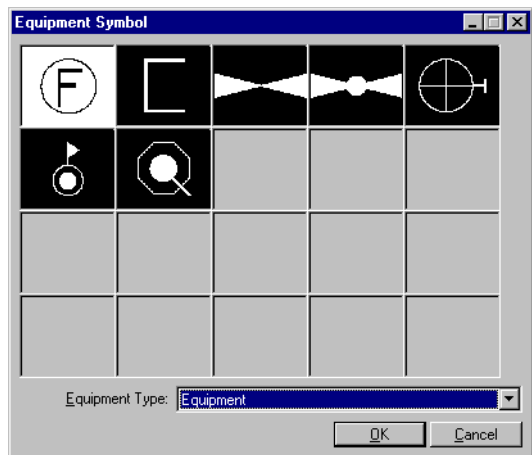



Figure 7-2 Equipment Symbol Dialog Box

Equipment Symbol Dialog Box Definition

Option	Function
Equipment Type	Select from a variety of types of irrigation equipment. This is a predefined database that may be customized. Select from backflow preventers, controllers, equipment, pumps, and water meters. The available symbols for the selected equipment type are displayed. You can add/modify items that display in the Equipment Symbol dialog box. See <i>Edit Equipment Database</i> on page 138 for more information.

QuickSteps

1. **Select Equipment ➔ Locate.**
The Equipment Symbol dialog box (above) displays.
2. **Select Backflow Preventers from the Equipment Type drop list for this example.**
3. **Select the symbol to be placed and click on OK.**
The Locate dialog box displays.

 The dialog box will display with the information relevant to the equipment type you have chosen.

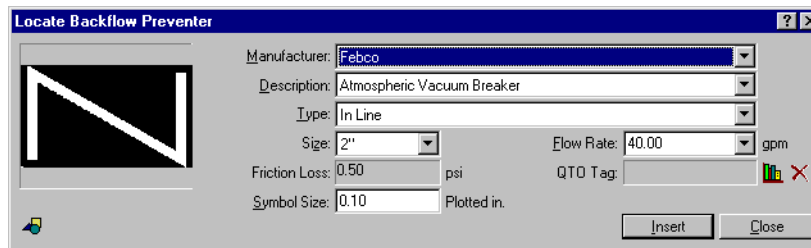



Figure 7-3 Locate Backflow Preventer Dialog Box

4. Select the manufacturer, description, type, and size. You may also specify a flow rate and symbol size.

 Your options will vary, depending on the equipment type selected.

5. Click on Insert.

You are prompted to select an insertion point and rotation angle.

6. Left click to place the symbol and rotation angle in the drawing and press Enter.

The equipment symbol is placed in the drawing.

7. Click on Close to terminate the command and close the Locate dialog box.

Equipment Table

ADVANCED IRRIGATION ➤ EQUIPMENT ➤ CREATE TABLE

KEY-IN COMMAND: ai equi ptbl

The Equipment Table command is used to create a table format in which to display information about the equipment placed in your drawing. You may choose from various table formats, depending on the type and quantity of information you would like to include in your table. All of the irrigation equipment in the selection set, including heads, pipes, valves, and equipment, will be totaled and displayed in the table.

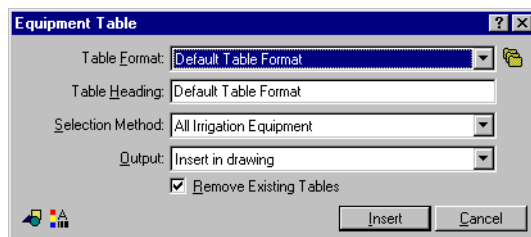



Figure 7-4 Equipment Table Dialog Box

Equipment Table Dialog Box Definitions

Option	Icon	Function
Table Format		This drop list enables you to present layouts for your equipment table. These can be different formats for different occasions.
Table Format Manager		The Table Format Manager stores all of the defined table formats. Click on this icon to create a new layout. See <i>Table Format Manager</i> on page 120 for more information.

Equipment Table Dialog Box Definitions



Option	Icon	Function
Table Heading		Type a name in this edit field as you would like it to display at the top of the equipment table.
Selection Method		Selection methods include choosing a selection set, selecting all irrigation equipment, and selecting equipment on layers.
Output		From this drop list, select how you would like the information relayed. You have the option of placing the output in the drawing or exporting it out into one of the following formats: an Excel (.XLS), comma separated (.CSV), or text (.TXT) file.
Remove Existing Tables		When toggled on, this option removes existing tables from the drawing.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and text style. You may also define line thickness.
Text Properties		The settings in the Text CAD Settings dialog box allow you to specify the text styles, color, and/or layers/levels for the drawing.

Table Format Manager







ICON: 

The Table Format Manager allows you to have multiple table formats set up. This may be a necessity due to the different client requirements you may have. The Table Format Manager will allow you to uniquely name the individual table formats, copy, rename, and delete formats. You can also view the items that are included in any one format.



Figure 7-5 Table Format Manager Dialog Box

Table Format Manager Dialog Box Definitions

Option	Icon	Function
New Format		Clicking on this icon allows you to create a new table format. See <i>New Format</i> on page 121 for more information.
Modify Format		Clicking on this icon allows you to modify the selected table format.
View Format		Clicking on this icon allows you to view the selected table format. You do not have the ability to modify any of the information displayed while viewing.
Rename Format		Clicking on this icon allows you to rename an existing format's title.
Copy Format		Clicking on this icon allows you to copy a selected table's format. This is useful if your formats for various tables are going to be similar; you can simply copy the format from a table and give the new table a different name.
Delete Format		Clicking on this icon allows you to delete the selected table format.

New Format

ICON: 

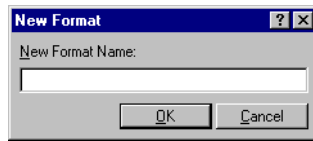


Figure 7-6 New Format Dialog Box

Use the New Format dialog box to name the format that you are creating. When finished, click on OK to display the Equipment Table Setup dialog box (below).

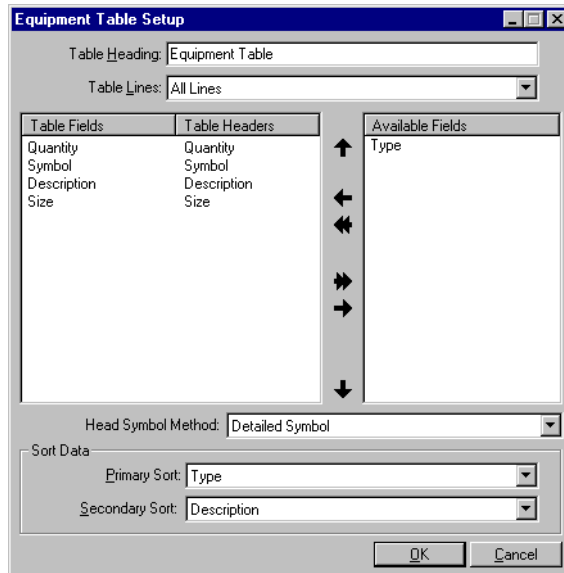








Figure 7-7 Equipment Table Setup Dialog Box

Equipment Table Setup Dialog Box Definitions

Option	Icon	Function
Table Heading		Type a name as you would like it to display at the top of the equipment table.
Table Lines		Use this drop list to select from different options for the display of table lines. Choose from all lines, outline only, vertical lines only, horizontal lines only, or horizontal and vertical lines.
Table Fields		This column lists the fields that will display in your table.
Table Headers		This column lists the headers that will display in your table.
Available Fields		This box lists the available fields that you can add to your table.
Head Symbol Method		You have the options of using detailed symbols or using the full symbol library to display irrigation head information in your table. The Detailed Symbol method groups heads by manufacturer, and within the manufacturer group, lists them by head type. A unique symbol is assigned to each head type. The Full Symbol Library method groups heads by manufacturer but does not distinguish between head types. Because of the combined grouping of head types by manufacturer, the full symbol method does not utilize head symbols.
Primary Sort		Select from the drop list the primary field by which you want the data sorted.
Secondary Sort		Select the second field by which to have your data sorted.
Move Item(s) Up		Clicking on this arrow moves the selected item position up in the Table Fields and Table Headers box.
Add Selected Items		Clicking on this arrow adds the selected item from the Available Fields box to the Table Fields and Table Headers box.

Equipment Table Setup Dialog Box Definitions

Option	Icon	Function
Add All Items		Clicking on this arrow adds all available items in the Available Fields box to the Table Fields and Table Headers box.
Remove All Items		Clicking on this arrow removes all items in the Table Fields and Table Headers box.
Remove Selected Items		Clicking on this arrow removes the selected items from the Table Fields and Table Headers box.
Move Item(s) Down		Clicking on this arrow moves the selected item down in the Table Fields and Table Headers box.

QuickSteps

1. Select Equipment → Create Table.

The Equipment Table dialog box (Figure 7-4 on page 119) displays.



2. Click on the Table Format Manager icon.

The Table Format Manager dialog box (Figure 7-5 on page 120) displays.



3. Click on the New Format icon.

The New Format dialog box (Figure 7-6 on page 121) displays.

4. Type Irrigation Equipment or the table heading of your choice and click on OK.

The Equipment Table Setup dialog box (Figure 7-7 on page 121) displays.

5. Type a table heading of your choice in the Table Heading edit field.

6. Select All Lines from the Table Lines drop list.

7. Select the fields that you would like to display in your table from the Available Fields box.

Highlight the desired item and click on the Add Selected Items arrow to move the item to the Table Fields and Table Headers box.

8. Set the Head Symbol Method to Detailed Symbol.

9. Set the Primary Sort selection to Type.

10. Set the Secondary Sort selection to Description.

11. Click on OK.

12. Highlight your new table title in the Table Format Manager dialog box and click on Close.

13. Verify that the desired table format and table heading are listed in the Equipment Table dialog box.

14. Select All Irrigation Equipment from the Selection Method drop list.

15. Select Insert in drawing from the Output drop list.

16. Toggle on the Remove Existing Tables option.

17. Click on the Insert button.

You are prompted to select an insertion point.

18. Click an appropriate spot in your drawing for insertion of the table.

The table is placed in the drawing.

19. Click on Cancel to end the command and close the Equipment Table dialog box.

EVALUATION

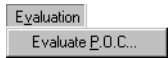


Figure 8-1 Evaluation Menu

In this chapter:

Evaluate POC 124

Evaluate POC

ADVANCED IRRIGATION ➤ EVALUATION ➤ EVALUATE P.O.C.

KEY-IN COMMAND: ai eval poc

The Evaluate POC command performs an evaluation on the selected point of connection. It is meant to be a tool to assist in the design process to catch a problem before the plan set is released. It is not intended to perform design recommendations, but to evaluate what you have designed. It does require that you have at least one point of connection symbol placed in your design and that you have utilized the Auto Size Mainlines command to size your mainline pipe.

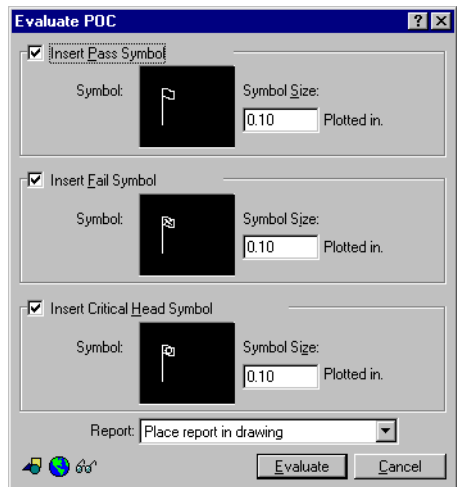


Figure 8-2 Evaluate POC Dialog Box

Evaluate POC Dialog Box Definitions

Option	Icon	Function
Insert Pass Symbol		This option places a symbol (flag) next to each head selected. This indicates whether the head passed the evaluation.
Insert Fail Symbol		This option places a symbol (flag) next to each head selected. This indicates whether the head failed the evaluation.
Insert Critical Head Symbol		This option identifies the sprinkler head that has the greatest pressure loss.
Report		This option creates a report of the pass/fail status of each valve that is connected to the selected point of connection. This report can be placed in the CAD design or exported to an Excel spreadsheet.
CAD Settings		Clicking on this icon allows you to specify the color, layer/level, linetype/style, and text style. You may also define line thickness.
Active Surface Model Settings		Clicking on this icon displays a current list of defined surface models from which to choose.
Query Evaluation Symbol		This option allows you to select the placed symbol and get all the information from the associated heads.

QuickSteps

1. Select Evaluation → Evaluate P.O.C.

The Evaluate POC dialog box (Figure 8-2 on page 124) displays.

2. Toggle on all of the symbol options and select Place report in drawing from the Report drop list. Set the Symbol Size value to .10 Plotted in.

3. Click on the Evaluate button.

You are prompted to select the objects to evaluate. Make sure you select the P.O.C.

4. Select the objects and press Enter.

The symbols are placed in the drawing.

5. Click on the Query evaluation symbol icon to see the evaluation data for a particular symbol. Click on Done in the Evaluation Data dialog box when you are finished viewing the data.

6. Click on Cancel in the Evaluate POC dialog box to end the command.

DATABASE

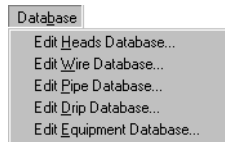


Figure 9-1 Database Menu

The **Advanced Irrigation** module utilizes five major database categories. These databases have a wide variety of manufacturers, as well as all the associated specifications included. All databases are customizable, so you have complete control over the contents.

The information in these databases is located the Support folder of **Eagle Point**. These databases should be backed up after editing.

In this chapter:

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<i>Wire Database Editor</i>	130
<i>Pipe Database Editor</i>	132
<i>Subsurface Database Editor</i>	134
<i>Edit Equipment Database</i>	138
<i>Backflow Preventer Database Editor</i>	139
<i>Controller Database Editor</i>	143
<i>Equipment Database Editor</i>	146
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Head Database Editor

ADVANCED IRRIGATION ➤ DATABASE ➤ EDIT HEADS DATABASE

KEY-IN COMMAND: ai headdb

The Head Database Editor contains the heads database for **Advanced Irrigation**. Here you will see a collection of heads from different manufacturers. You have full control over specifying the series, nozzle, pressure, and spray radius. Additionally, you can specify the Quantity Takeoff ID to use for each head. You also have the ability to specify whether a head is a valve-in-head type.

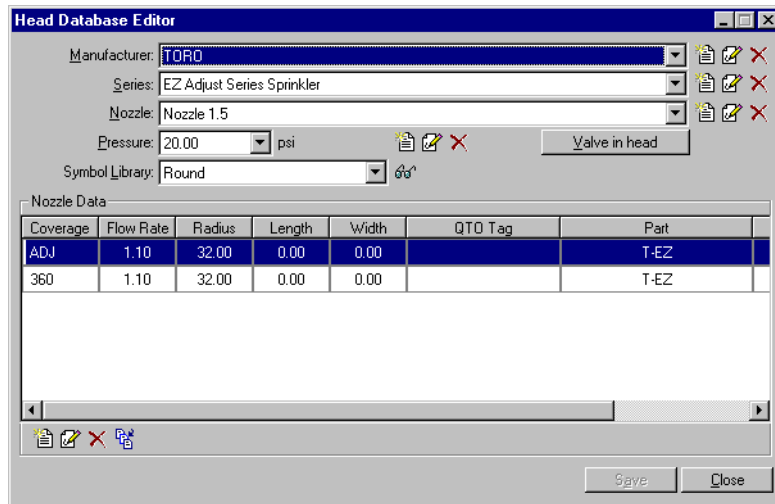













Figure 9-2 Head Database Editor Dialog Box



Head Database Editor Dialog Box Definitions

Option	Icon	Function
Manufacturer		This drop list displays the brand name of the irrigation head. Select from a complete database of irrigation manufacturers. The database is completely customizable.
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Head Database Editor dialog box redisplay, in which you may specify the settings for the new head. After you have finished adding the information, click on the Save button to save the data to the heads database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Head Database Editor dialog box redisplay with the new manufacturer name. Click on the Save button to save the data to the heads database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer and its data will be removed from the Head Database Editor dialog box. Click on Save in the Head Database Editor dialog box to save the changes to the heads database.
Series		This drop list displays the model line of the irrigation head. You may select from any of the major manufacturers or add one of your own.
New Series		Click on this icon to add the name of a new series to the database. After a name has been entered and you click on OK in the New Series dialog box, the Head Database Editor dialog box displays, in which you may specify the settings for the new series. After you have finished adding the information, click on the Save button to save the data to the heads database.

Head Database Editor Dialog Box Definitions

Option	Icon	Function
Modify Series		Click on this icon to modify a series' name. Select the name that you want to modify from the Series drop list and click on the Modify Series icon. Change the name in the Modify Series dialog box and click on OK. The Head Database Editor dialog box redisplay with the new series name. Click on the Save button to save the data to the heads database.
Delete Series		Click on this icon to delete a series and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected series. If you want to delete the series, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the series and its data will be removed from the Head Database Editor dialog box. Click on Save in the Head Database Editor dialog box to save the changes to the heads database.
Nozzle		This drop list displays the type of nozzle. You may choose from the complete database of irrigation nozzles.
New Nozzle		Click on this icon to add the name of a new nozzle to the database. After a name has been entered and you click on OK in the New Nozzle dialog box, the Head Database Editor dialog box displays, in which you may specify the settings for the new nozzle. After you have finished adding the information, click on the Save button to save the data to the heads database.
Modify Nozzle		Click on this icon to modify a nozzle's name. Select the name that you want to modify from the Nozzle drop list and click on the Modify Nozzle icon. Change the name in the Modify Nozzle dialog box and click on OK. The Head Database Editor dialog box redisplay with the new nozzle name. Click on the Save button to save the data to the heads database.
Delete Nozzle		Click on this icon to delete a nozzle and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected nozzle. If you want to delete the nozzle, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the nozzle and its data will be removed from the Head Database Editor dialog box. Click on Save in the Head Database Editor dialog box to save the changes to the heads database.
Pressure		This drop list displays the operation pressure at the irrigation head.
New Pressure		Click on this icon to display the New Pressure dialog box and enter a new pressure value. Click on Save in the Head Database Editor dialog box to save the change to the heads database.
Modify Pressure		Click on this icon to display the Modify Pressure dialog box and modify an existing pressure value. Click on Save in the Head Database Editor dialog box to save the changes to the heads database.
Delete Pressure		Click on this icon to delete an existing pressure value. A dialog box displays, asking you to confirm your intention to delete the selected pressure. If you want to delete the pressure, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the pressure and its data will be removed from the Head Database Editor dialog box. Click on Save in the Head Database Editor dialog box to save the changes to the heads database.
Valve in head		The Valve in head button is for sprinkler heads that have that option.
Symbol Library		The Symbol Library drop list gives you the ability to select from 11 different styles of head symbols.
Preview Symbol Library		Click on this icon to display a preview of the current head symbols listed in the database.
Coverage		This column displays the angle of coverage for the various nozzles.
Flow Rate		This column displays the specified flow rate of the nozzle.
Radius		This column displays the radius of the coverage arc.
Length		This column displays the length of coverage arcs that are end strip, side strip, or center strip.
Width		This column displays the width of coverage arcs that are end strip, side strip, or center strip.
QTO Tag		This column displays the QTO item ID number that is associated with the displayed coverage.
Part		This column displays the part number specified for the head.
Label		This column displays the label specified for the head.
New Coverage		Click on this icon to add a new coverage pattern.
Modify Coverage		Click on this icon to edit existing data for the selected coverage pattern.

Head Database Editor Dialog Box Definitions

Option	Icon	Function
Delete Coverage		Click on this icon to delete a selected coverage pattern. A dialog box displays, asking you to confirm your intention to delete the selected coverage. If you want to delete the coverage, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the coverage and its data will be removed from the Head Database Editor dialog box.
Apply global values		Click on this icon to display the Apply Global Values dialog box. This dialog box contains the following options: Assign Library Name, Assign Flow Rate, Assign QTO Tag, Assign Part Number, and Assign Label. You may choose any of the 11 symbols from the symbol library to assign a library name. You may type the desired gpm value in the Flow Rate edit field. You may access the QTO Library to assign a QTO Tag. Type a number in the Part Number edit field to assign the part number. Type a label name in the Label edit field to assign a label. After the edit fields are completed, you have the option of applying the values to all coverages for a selected option. These options include: all items in the database, manufacturer, series, nozzle, and pressure. Click on OK to apply the values. Click on Save in the Head Database Editor dialog box to save the data to the heads database.

QuickSteps

1. Select Database → Edit Heads Database.

The Head Database Editor dialog box (Figure 9-2 on page 128) displays.

2. Select the manufacturer, series, and nozzle of your choice.

3. Select the operating pressure of the sprinkler head.

4. Click on the Symbol Library drop list and select a symbol that represents the sprinkler head.

 Once you assign a symbol to a data file, it remains until you change it, even if you open new drawings.

5. Change any coverage information desired and click on Save.

6. Click on Close to end the command.

Wire Database Editor

ADVANCED IRRIGATION ⇨ DATABASE ⇨ EDIT WIRE DATABASE

KEY-IN COMMAND: ai wi redb

The Wire Database Editor allows you to specify different gauges, diameters, and resistance of wire that may be used in the irrigation system. You can specify the description of the wire and the associated parameters. This database also gives you the ability to assign a Quantity Takeoff ID to the wire.

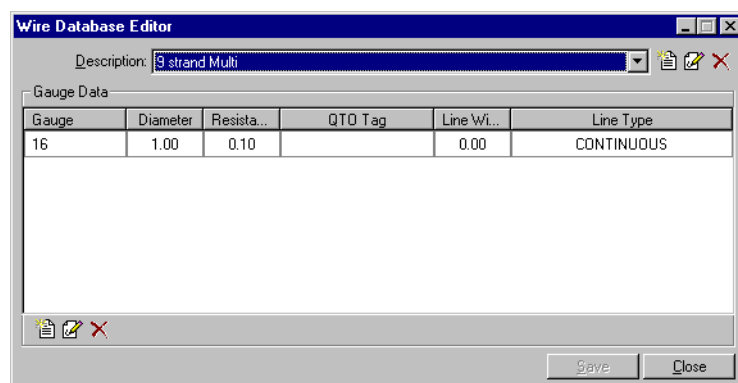








Figure 9-3 Wire Database Editor Dialog Box

Wire Database Editor Dialog Box Definitions

Option	Icon	Function
Description		Select the type of wire that you want to use in the design from the Description drop list.
New Description		Click on this icon to type a new description in the New Description dialog box. Click on OK. The Wire Database Editor dialog box redisplay. Click on the New Gauge icon to assign gauge data to the new wire description. Click on Save to save the data to the wire database.
Modify Description		Highlight the description that you want to modify and click on the Modify Description icon. After you have entered a new description, click on OK in the Modify Description dialog box. The Wire Database Editor dialog box redisplay. Click on Save to save the data to the wire database.
Delete Description		Click on this icon to delete a description and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected description. If you want to delete the description, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the description and its data will be removed from the Wire Database Editor dialog box. Click on Save to save the change to the wire database.
Gauge		This column displays the size of the wire to be utilized.
Diameter		The diameter, measured in millimeters, is displayed in this column for selected wire.
Resistance		The resistance, measured in ohms, is listed in this column.
QTO Tag		This value is a number that is assigned for quantity takeoff.
Line Width		This column displays the thickness of the line to be placed into the drawing.
Line Type		This column displays the line style that will be used. Options include: by block, by layer, and continuous.
New Gauge		Clicking on this icon displays the New Gauge dialog box. You may set values for gauge, diameter, resistance, QTO tag, line width, and line type. After the data is entered, click on OK. Click on Save in the Wire Database Editor to save the data to the wire database.
Modify Gauge		Select the gauge that you want to modify and click on the Modify Gauge icon. Change the desired settings in the Modify Gauge dialog box and click on OK. Click on Save in the Wire Database Editor to save the data to the wire database.
Delete Gauge		Highlight the gauge that you want to delete and click on the Delete Gauge icon to delete the gauge and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected gauge. If you want to delete the gauge, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the gauge and its data will be removed from the Wire Database Editor dialog box. Click on Save in the Wire Database Editor to save the change to the wire database.

QuickSteps

1. Select Database → Edit Wire Database.

The Wire Database Editor dialog box (Figure 9-3 on page 130) displays.

2. Select a wire from the Description drop list to review/modify.

The information for the selected wire type displays in the Gauge Data box.

3. Click on the New Gauge icon located in the lower left corner of the Gauge Data box.

The New Gauge dialog box displays.

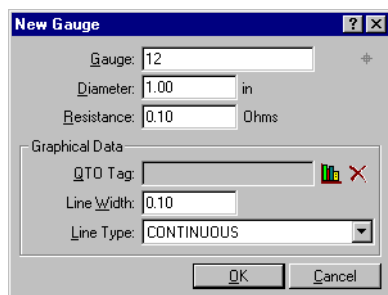


Figure 9-4 New Gauge Dialog Box

4. Fill in the appropriate information and click on OK.
5. Click on Save in the Wire Database Editor dialog box to save the changes to the wire database.
6. Click on Close.

Pipe Database Editor

ADVANCED IRRIGATION ➤ DATABASE ➤ EDIT PIPE DATABASE

KEY-IN COMMAND: ai pi pedb

The Pipe Database Editor allows you to specify the pipe parameters that may be used for laterals and mainlines. Here you can specify the description and size of the pipe. You can also specify the inner diameter, flow rate, and roughness coefficient of the pipe. The roughness coefficient is used in calculating friction loss in the pipe. A Quantity Takeoff ID can be assigned to the pipe, as well. The Flexible toggle allows you to specify that the pipe is a flexible pipe. A flexible pipe is a pipe that can have arcs in the run.

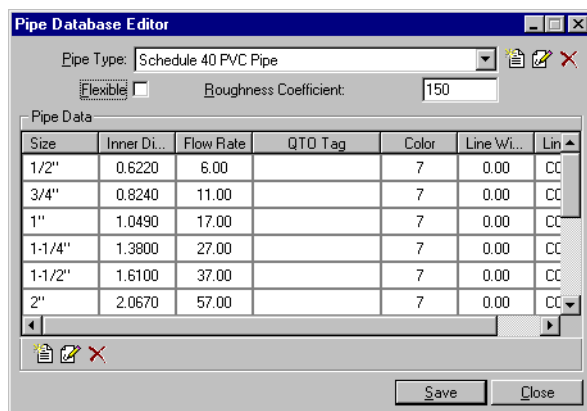





Figure 9-5 Pipe Database Editor Dialog Box

Pipe Database Editor Dialog Box Definitions

Option	Icon	Function
Pipe Type		This drop list gives you the option of selecting the type of pipe to be used in the design. Select from a wide variety of predefined pipe types. This is a user-definable/customizable database.
New Type		Click on this icon to enter a new pipe type. After you have clicked on OK in the New Type dialog box, the Pipe Database Editor dialog box redisplay. Define whether the pipe is flexible and edit the Roughness Coefficient value. To enter pipe size data, click on the New Size icon in the lower left corner of the database dialog box. The New Size dialog box displays and provides the following editable options: nominal pipe size, inner diameter, maximum flow rate, QTO tag, color, line width, and line type. After you have entered the information, click on OK. Click on Save in the Pipe Database Editor dialog box to save the data to the pipe database.
Modify Type		Click on this icon to modify a selected pipe type's name. After the name has been changed, click on OK. Click on Save in the Pipe Database Editor dialog box to save the data to the pipe database.
Delete Type		Click on this icon to delete a selected pipe type and all of its data from the database. A dialog box displays, asking you to confirm your intention to delete the selected type. If you want to delete the type, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the type and its data will be removed from the Pipe Database Editor dialog box. Click on Save in the Pipe Database Editor dialog box to save the change to the pipe database.
Flexible		Toggle on this option if the pipe is a flexible pipe.

Pipe Database Editor Dialog Box Definitions

Option	Icon	Function
Roughness Coefficient		This value is the coefficient of the roughness used in friction loss calculations.
Size		This column displays the size of the pipe to be placed into the drawing.
Inner Diameter		This value represents the inside diameter of the pipe.
Flow Rate		This value is the maximum flow rate in feet per second or meters per second, depending on system units.
QTO Tag		This value is a number that is assigned for quantity takeoff purposes.
Color		This value is the color number assigned to the pipe.
Line Width		The line width is the plotted width of the line representing the pipe.
Line Type		All of the loaded line types in the current drawing are displayed.
New Size		Click on this icon to display the New Size dialog box. The New Size dialog box provides the following editable options: nominal pipe size, inner diameter, maximum flow rate, QTO tag, color, line width, and line type. After you have entered the information, click on OK. Click on Save in the Pipe Database Editor dialog box to save the data to the pipe database.
Modify Size		Click on this icon to modify the settings for an existing pipe size. After you have entered the information, click on OK. Click on Save in the Pipe Database Editor dialog box to save the data to the pipe database.
Delete Size		Click on this icon to delete the selected pipe data from the pipe database. A dialog box displays, asking you to confirm your intention to delete the selected size. If you want to delete the size, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the size and its data will be removed from the Pipe Database Editor dialog box. Click on Save in the Pipe Database Editor dialog box to save the change to the pipe database.

QuickSteps

1. **Select Database → Edit Pipe Database.**

The Pipe Database Editor dialog box (Figure 9-5 on page 132) displays.

2. **Select the pipe type that you want to review/modify.**

3. **Review the information displayed in the Pipe Data section of the dialog box.**

4. **Click on the Modify Size icon located in the lower left corner of the Pipe Database Editor dialog box.**

The Modify Size dialog box displays.

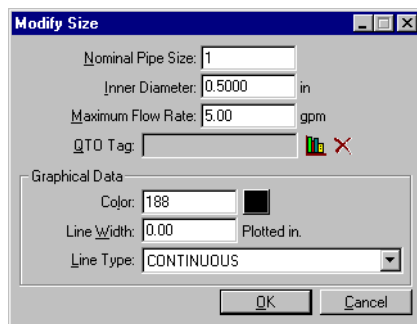



Figure 9-6 Modify Size Dialog Box

5. **Review/modify the desired information and click on OK.**
6. **Click on Save to save updates to the pipe database.**
7. **Click on Close in the Pipe Database Editor dialog box.**

Subsurface Database Editor

ADVANCED IRRIGATION ➤ DATABASE ➤ EDIT DRIP DATABASE

KEY-IN COMMAND: ai dri pdb

The Subsurface Database Editor allows you to define a database of emitters and subsurface irrigation lines. The emitters are individual irrigation sources that apply water to a specific place, such as a shrub or tree. A subsurface region consists of perforated pipe that has holes in it at a specified spacing. For both types of subsurface irrigation, you can specify the manufacturer, flow rate, and Quantity Takeoff ID. In the case of the subsurface option, you can also specify the emitter spacing, line width, and line type. Both of these databases are used in the commands under the Drip menu.

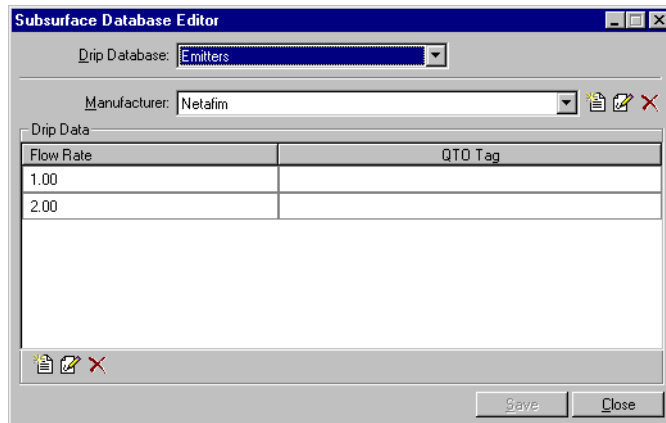


Figure 9-7 Subsurface Database Editor – Emitters Dialog Box

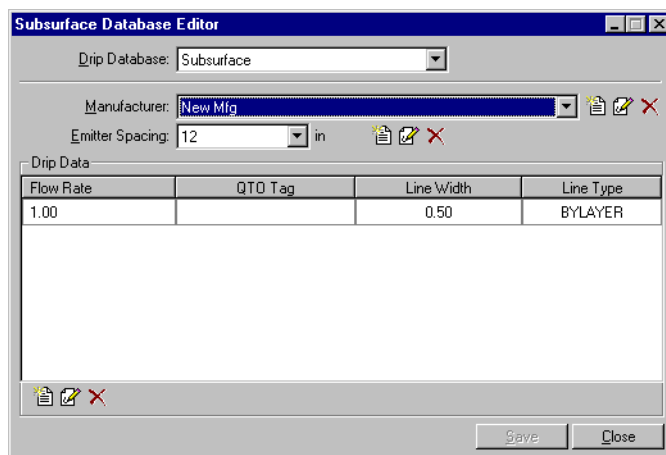










Figure 9-8 Subsurface Database Editor – Subsurface Dialog Box


Subsurface Database Editor Dialog Box Definitions

Option	Icon	Function
Drip Database		The drip database options are Emitters and Subsurface. The Emitters category refers to those emitters that are placed above ground, typically in close proximity to a plant stem. The Subsurface classification includes below grade drip irrigation systems.
Manufacturer		The Manufacturer drop list allows you to select the manufacturer of your choice from a list of available manufacturers.

Subsurface Database Editor Dialog Box Definitions

Option	Icon	Function
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Subsurface Database Editor dialog box redisplay. If the Drip Database selection is Subsurface, the Emitter Spacing value needs to be entered. Click on the New Spacing icon to the right of the Emitter Spacing drop list. Enter the desired spacing and click on OK in the New Spacing dialog box. Click on the New Flow Rate icon in the lower left corner of the database dialog box to display the New Flow Rate dialog box. Edit the flow rate and QTO tag, if desired. If the Drip Database selection is Subsurface, you will also need to enter a line width and line type. Click on OK. Click on the Save button in the Subsurface Database Editor dialog box to save the data to the equipment database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Subsurface Database Editor dialog box redisplay with the modified manufacturer name. Click on the Save button to save the data to the equipment database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer will be removed from the Subsurface Database Editor dialog box. Click on Save in the Subsurface Database Editor dialog box to save the changes to the equipment database.
Emitter Spacing		This option is available only when Subsurface is selected from the Drip Database drop list. Select the desired emitter spacing from this drop list.
New Spacing		Click on this icon to add a new spacing value. Click on OK in the New Spacing dialog box. The Subsurface Database Editor dialog box redisplay with the spacing added to the Emitter Spacing drop list. Click on the New Flow Rate icon in the lower left corner of the database dialog box to display the New Flow Rate dialog box. Edit the flow rate and QTO tag, if desired. If the Drip Database selection is Subsurface, you will also need to enter a line width and line type. Click on OK. Click on Save to save the data to the equipment database.
Modify Spacing		Click on this icon to modify a selected spacing value. Change the value in the Modify Spacing dialog box and click on OK. Click on the Save button in the Subsurface Database Editor dialog box to save the data to the equipment database.
Delete Spacing		Click on this icon to delete a spacing value and its related data. A dialog box displays, asking you to confirm your intention to delete the selected spacing value. If you want to delete the spacing, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the spacing will be removed from the Emitter Spacing drop list. Click on the Save button in the Subsurface Database Editor dialog box to save the change to the equipment database.
Flow Rate		This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
QTO Tag		This value is a number that is assigned for quantity takeoff purposes.
Line Width		This value is given only when Subsurface is selected from the Drip Database drop list. The line width value designates how the line representing the subsurface irrigation system will be graphically shown. This value is given in plotted inches or millimeters.
Line Type		This value is given only when Subsurface is selected from the Drip Database drop list. The line type designates how the line representing the subsurface irrigation system will be graphically displayed. The line type choices are all of the loaded line types in the current drawing.
New Flow Rate		Click on this icon to display the New Flow Rate dialog box. Type a new value in the Flow Rate edit field and specify a QTO tag if desired. If Subsurface was selected from the Drip Database drop list, you will also need to specify the line width and line type. Click on OK. The new flow rate data is added to the Subsurface Database Editor dialog box. Click on Save to save the data to the equipment database.
Modify Flow Rate		Highlight the flow rate that you want to modify in the Subsurface Database Editor dialog box. Click on the Modify Flow Rate icon to display the Modify Flow Rate dialog box. Change the flow rate value as desired. Click on OK. The modified flow rate displays in the Flow Rate column in the Subsurface Database Editor dialog box. Click on Save to save the data to the equipment database.

Subsurface Database Editor Dialog Box Definitions

Option	Icon	Function
Delete Flow Rate		Highlight the flow rate that you want to delete in the Subsurface Database Editor dialog box. Click on the Delete Flow Rate icon. A dialog box displays, asking you to confirm your intention to delete the selected flow rate. If you want to delete the flow rate, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the flow rate will be removed from the Subsurface Database Editor dialog box. Click on Save to save the change to the equipment database.

New Flow Rate

ICON: 

The New Flow Rate command enables you to add new flow rate data for a selected manufacturer. Click on the New Flow Rate icon in the Subsurface Database Editor dialog box to display the New Flow Rate dialog box. After you have finished making changes, click on OK. The new flow rate data is displayed in the Subsurface Database Editor dialog box. Click on Save in the Subsurface Database Editor dialog box to save the data to the subsurface database.

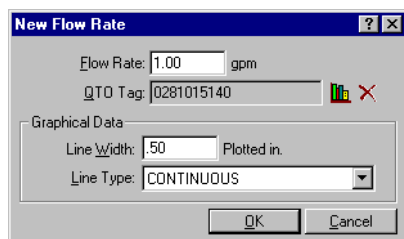




Figure 9-9 New Flow Rate Dialog Box

New Flow Rate Dialog Box Definitions

Option	Icon	Function
Flow Rate		This value reflects the amount of water flow through the pipe in gallons per minute or liters per minute, depending on units. Type a new value in the Flow Rate edit field.
QTO Tag	 	<p>This value is an ID that is assigned for quantity takeoff purposes.</p> <p>Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.</p> <p>If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon.</p> <p>Review the Quantity Takeoff documentation for additional information.</p>
Line Width		This value is displayed only when Subsurface is selected from the Drip Database drop list. Type the desired value in the Line Width edit field. The line width value designates how the line representing the subsurface irrigation system will be graphically shown. This value is given in plotted inches or millimeters.
Line Type		This value is given only when Subsurface is selected from the Drip Database drop list. The line type designates how the line representing the subsurface irrigation system will be displayed. Select the desired line type from the Line Type drop list. The line type choices are all of the loaded line types in the current drawing.

Modify Flow Rate

ICON: 

The Modify Flow Rate command enables you to modify a selected flow rate value. Click on the Modify Flow Rate icon in the Subsurface Database Editor dialog box to display the Modify Flow Rate dialog

box. After you have finished making changes, click on OK. The modified flow rate is displayed in the Subsurface Database Editor dialog box. Click on Save in the Subsurface Database Editor dialog box to save the data to the equipment database.

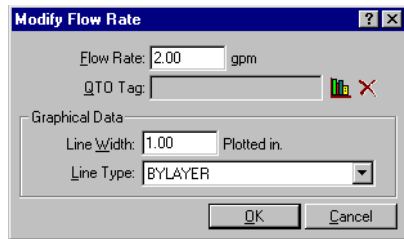




Figure 9-10 Modify Flow Rate Dialog Box

Modify Flow Rate Dialog Box Definitions

Option	Icon	Function
Flow Rate		This value is the amount of water flow through the pipe in gallons per minute or liters per minute. Type a new value in the Flow Rate edit field.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes. Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.
Line Width		This value is displayed only when Subsurface is selected from the Drip Database drop list. Type the desired value in the Line Width edit field. The line width value designates how the line representing the subsurface irrigation system will be graphically shown. This value is given in plotted inches or millimeters.
Line Type		This value is given only when Subsurface is selected from the Drip Database drop list. The line type designates how the line representing the subsurface irrigation system will be displayed. Select the desired line type from the Line Type drop list. The line type choices are all of the loaded line types in the current drawing.

QuickSteps

1. Select Database → Edit Drip Database.

The Subsurface Database Editor dialog box (Figure 9-7 on page 134, Figure 9-8 on page 134) displays.

2. Select Emitters from the Drip Database drop list.

3. Select the manufacturer that you want to review/modify and click on the Modify Manufacturer icon.

The Modify Manufacturer dialog box displays.

4. Modify the manufacturer name as desired and click on OK.

The Subsurface Database Editor dialog box redisplay with the modified name in the Manufacturer drop list.

5. Highlight a flow rate in the Drip Data section and click on the Modify Flow Rate icon.

The Modify Flow Rate dialog box (above) displays.

6. Type a new flow rate in the Flow Rate edit field and click on OK.

7. Review the information displayed in the Subsurface Database Editor dialog box. If no additional changes are desired, click on Save to save the updates to the database.

8. Click on Close in the Subsurface Database Editor dialog box.

Edit Equipment Database

ADVANCED IRRIGATION ➤ DATABASE ➤ EDIT EQUIPMENT DATABASE

KEY-IN COMMAND: ai equi pdb

The Edit Equipment Database is a collection of databases of irrigation equipment commonly used in an irrigation system. This includes backflow preventers, controllers, equipment (couplers, elbows), pumps, valves, and water meters. Each of these databases is used in the Locate Equipment command that allows you to place these items into the drawing. You can customize the databases to your own needs.

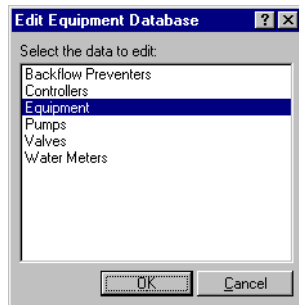





Figure 9-11 Edit Equipment Database Dialog Box

The Edit Equipment Database dialog box displays the equipment databases available to you for editing. Highlight the data category that you want to edit and click on OK. The appropriate database editor dialog box displays, providing you with options to change the information in that database.












Backflow Preventer Database Editor

Figure 9-12 Backflow Preventer Database Editor Dialog Box




Backflow Preventer Database Editor Dialog Box Definitions

Option	Icon	Function
Manufacturer		The Manufacturer drop list allows you to select the manufacturer of your choice from a list of available manufacturers.
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Backflow Preventer Database Editor dialog box redisplay. Click on the New Description icon to enter a description for the new entry. After you have typed the name in the Name edit field of the New Description dialog box, click on OK. The Backflow Preventer Database Editor dialog box redisplay. Click on the New Type icon to enter a name for the backflow preventer type (e.g., AVB, anti-siphon, PVB, R.P. Unit, double check, dual check). Click on OK. Click on the New Size icon in the Backflow Preventer Database Editor dialog box. Enter the size of the pipe (this is the size at which it enters and leaves the backflow preventer) and click on OK. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. You may type a number in the Part Number edit field to assign a part number to the item. Click on the New Flow Rate icon to enter the flow rate, friction loss, and velocity information. Click on OK in the New Flow Rate dialog box when finished entering the data. The information displays in the Backflow Preventer Data section of the Backflow Preventer Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Backflow Preventer Database Editor dialog box redisplay with the modified manufacturer name. Click on the Save button to save the data to the equipment database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer will be removed from the Backflow Preventer Database Editor dialog box. Click on Save in the Backflow Preventer Database Editor dialog box to save the changes to the equipment database.
Description		This drop list displays descriptive statements that identify the equipment in the database for the selected manufacturer.

Backflow Preventer Database Editor Dialog Box Definitions

Option	Icon	Function
New Description		Click on this icon to add an item description for a selected manufacturer. Select the desired manufacturer from the Manufacturer drop list. Click on the New Description icon and type the item description. Click on OK. Click on the New Type icon to enter information about the item type (e.g., AVB, anti-siphon, PVB, R.P. Unit, double check, dual check) and click on OK. Click on the New Size icon and enter the size of the item. Click on OK. Enter a part number if desired in the Part Number edit field. Click on the New Flow Rate icon and enter the flow rate, friction loss, and velocity in the New Flow Rate dialog box. Click on OK. Review the information in the Backflow Preventer Database Editor dialog box and click on Save to save the data to the equipment database.
Modify Description		Click on this icon to change the description for a selected item. Select the description that you want to change from the Description drop list. Click on the Modify Description icon. Edit the information in the Modify Description dialog box and click on OK. Click on Save in the Backflow Preventer Database Editor dialog box to save the information to the equipment database.
Delete Description		Click on this icon to delete a description and its data. A dialog box displays, asking you to confirm your intention to delete the selected description. If you want to delete the description, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the description will be removed from the Backflow Preventer Database Editor dialog box. Click on Save in the Backflow Preventer Database Editor dialog box to save the changes to the equipment database.
Type		This drop list displays information that identifies the equipment type (e.g., AVB, anti-siphon, PVB, R.P. Unit, double check, dual check) for the selected manufacturer and description.
New Type		Click on this icon to add an item type for a selected manufacturer. Select the desired manufacturer and edit or select the desired description. Click on the New Type icon and enter the new type information (e.g., AVB, anti-siphon, PVB, R.P. Unit, double check, dual check). Click on OK. Click on the New Size icon and enter the size of the item. Click on OK. Enter a part number if desired in the Part Number edit field. Click on the New Flow Rate icon and enter the flow rate, friction loss, and velocity in the New Flow Rate dialog box. Click on OK. Review the information in the Backflow Preventer Database Editor dialog box and click on Save to save the data to the equipment database.
Modify Type		Click on this icon to modify a selected entry in the Type drop list. Select the entry to edit and click on the Modify Type icon. Modify the type data and click on OK. Modify any additional related information in the Backflow Preventer Database Editor dialog box as necessary. Click on Save to save the data to the equipment database.
Delete Type		Click on this icon to delete a selected entry from the Type drop list. A dialog box displays, asking you to confirm your intention to delete the selected type. If you want to delete the type, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the type and its data will be removed from the Backflow Preventer Database Editor dialog box. Click on Save in the Backflow Preventer Database Editor dialog box to save the changes to the equipment database.
Size		This drop list displays the size of the pipe connected to the backflow preventer.
New Size		Click on this icon to enter a new size for a selected item. After you have entered a number in the New Size dialog box, click on OK. Update/Add data as necessary in the Backflow Preventer Database Editor dialog box and click on Save to save the changes to the equipment database.
Modify Size		Click on this icon to change a selected size. Edit the size in the Modify Size dialog box and click on OK. Modify any additional information as necessary in the Backflow Preventer Database Editor dialog box. Click on Save to save the changes to the equipment database.
Delete Size		Click on this icon to delete a selected entry from the Size drop list. A dialog box displays, asking you to confirm your intention to delete the selected size. If you want to delete the size, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the size and its data will be removed from the Backflow Preventer Database Editor dialog box. Click on Save in the Backflow Preventer Database Editor dialog box to save the changes to the equipment database.
QTO Tag	 	<p>This value is an ID that is assigned for quantity takeoff purposes.</p> <p>Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.</p> <p>If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon.</p> <p>Review the Quantity Takeoff documentation for additional information.</p>
Part Number		Type the equipment's part number in this edit field.

Backflow Preventer Database Editor Dialog Box Definitions

Option	Icon	Function
Flow Rate		This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
Friction Loss		This value is the loss of pressure as water flows through the piping system.
Velocity		This value shows the speed in feet per second or meters per second that the water is traveling through the pipe.
New Flow Rate		Click on this icon to display the New Flow Rate dialog box. Enter the flow rate, friction loss, and velocity and click on OK. Review the information in the Backflow Preventer Database Editor dialog box and click on Save to save the data to the equipment database.
Modify Flow Rate		Highlight the flow rate that you want to modify in the Backflow Preventer Database Editor dialog box. Click on the Modify Flow Rate icon to display the Modify Flow Rate dialog box. Change the flow rate, friction loss, and velocity as desired. Click on OK. The modified data displays in the Backflow Preventer Database Editor dialog box. Click on Save to save the data to the equipment database.
Delete Flow Rate		Highlight the flow rate that you want to delete in the Backflow Preventer Database Editor dialog box. Click on the Delete Flow Rate icon. A dialog box displays, asking you to confirm your intention to delete the selected flow rate. If you want to delete the flow rate, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the flow rate will be removed from the Backflow Preventer Database Editor dialog box. Click on Save to save the change to the equipment database.

New Flow Rate

ICON: 

The New Flow Rate command enables you to add a new flow rate value for a selected item. Click on the New Flow Rate icon in the Backflow Preventer Database Editor dialog box to display the New Flow Rate dialog box. After you have finished making changes, click on OK. The new flow rate data is displayed in the Backflow Preventer Database Editor dialog box. Click on Save in the Backflow Preventer Database Editor dialog box to save the data to the equipment database.

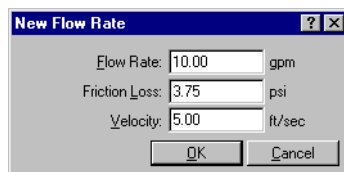


Figure 9-13 New Flow Rate Dialog Box

New Flow Rate Dialog Box Definitions

Option	Function
Flow Rate	This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
Friction Loss	This value is the loss of pressure as water flows through the piping system.
Velocity	This value shows the speed in feet per second or meters per second that the water is traveling through the pipe.

Modify Flow Rate

ICON: 

The Modify Flow Rate command enables you to modify a selected flow rate value. Click on the Modify Flow Rate icon in the Backflow Preventer Database Editor dialog box to display the Modify Flow Rate dialog box. After you have finished making changes, click on OK. The modified flow rate data is displayed in the Backflow Preventer Database Editor dialog box. Click on Save in the Backflow Preventer Database Editor dialog box to save the data to the equipment database.

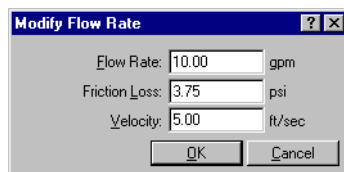


Figure 9-14 Modify Flow Rate Dialog Box

Modify Flow Rate Dialog Box Definitions

Option	Function
Flow Rate	This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
Friction Loss	This value is the loss of pressure as water flows through the piping system.
Velocity	This value shows the speed in feet per second or meters per second that the water is traveling through the pipe.

Controller Database Editor

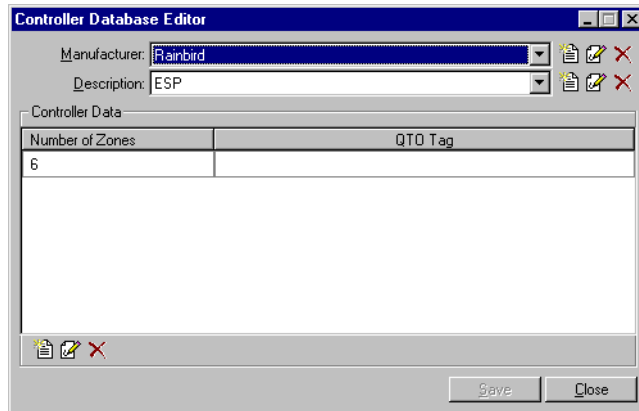






Figure 9-15 Controller Database Editor Dialog Box

Controller Database Editor Dialog Box Definitions

Option	Icon	Function
Manufacturer		The Manufacturer drop list allows you to select the manufacturer of your choice from a list of available sprinkler controller manufacturers.
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Controller Database Editor dialog box redisplay. Click on the New Description icon to enter a description for the new entry. After you have typed the description in the New Description dialog box, click on OK. The Controller Database Editor dialog box redisplay. Click on the New Number of Zones icon and enter the number of zones the controller will regulate. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Number of Zones dialog box when finished entering the data. The information displays in the Controller Data section of the Controller Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Controller Database Editor dialog box redisplay with the modified manufacturer name. Click on the Save button to save the data to the equipment database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer will be removed from the Controller Database Editor dialog box. Click on Save in the Controller Database Editor dialog box to save the changes to the equipment database.
Description		This drop list displays descriptive statements that identify the equipment in the database for the selected manufacturer.
New Description		Click on this icon to add a controller description for a selected manufacturer. Select the desired manufacturer from the Manufacturer drop list. Click on the New Description icon and type the controller description. Click on OK in the New Description dialog box. The Controller Database Editor dialog box redisplay. Click on the New Number of Zones icon and enter the number of zones the controller will regulate. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Number of Zones dialog box when finished entering the data. The information displays in the Controller Data section of the Controller Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Description		Click on this icon to change the description for a selected item. Select the description that you want to change from the Description drop list. Click on the Modify Description icon. Edit the information in the Modify Description dialog box and click on OK. Click on Save in the Controller Database Editor dialog box to save the information to the equipment database.

Controller Database Editor Dialog Box Definitions

Option	Icon	Function
Delete Description		Click on this icon to delete a description and its data. A dialog box displays, asking you to confirm your intention to delete the selected description. If you want to delete the description, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the description will be removed from the Controller Database Editor dialog box. Click on Save in the Controller Database Editor dialog box to save the changes to the equipment database.
Number of Zones		Each zone is an irrigation area that is under the control of one sprinkler valve. This column displays the total number of zones regulated by the controller.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
New Number of Zones		Click on this icon to make a new entry for the number of zones that a controller will regulate. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Number of Zones dialog box when finished entering the data. The information displays in the Controller Data section of the Controller Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Number of Zones		Click on this icon to modify an entry for the number of zones that a controller will regulate. Click on OK in the Modify Number of Zones dialog box after you have made the desired changes. The Controller Database Editor dialog box redisplay with the modified information. Click on Save to add the information to the equipment database.
Delete Number of Zones		Click on this icon to delete a selected entry in the Number of Zones column. A dialog box displays, asking you to confirm your intention to delete the selected entry. If you want to delete the entry, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the entry will be removed from the Controller Database Editor dialog box. Click on Save in the Controller Database Editor dialog box to save the changes to the equipment database.

New Number of Zones

ICON: 

The New Number of Zones command enables you to add a new zone number value for a selected item. Click on the New Number of Zones icon in the Controller Database Editor dialog box to display the New Number of Zones dialog box. After you have finished making changes, click on OK. The new number is displayed in the Controller Database Editor dialog box. Click on Save in the Controller Database Editor dialog box to save the data to the equipment database.

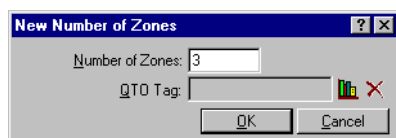




Figure 9-16 New Number of Zones Dialog Box

New Number of Zones Dialog Box Definitions

Option	Icon	Function
Number of Zones		Make a new entry for the number of zones that a controller will regulate.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes. Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.

Modify Number of Zones



The Modify Number of Zones command enables you to modify a selected zone number value. Click on the Modify Number of Zones icon in the Controller Database Editor dialog box to display the Modify Number of Zones dialog box. After you have finished making changes, click on OK. The modified zone number is displayed in the Controller Database Editor dialog box. Click on Save in the Controller Database Editor dialog box to save the data to the equipment database.

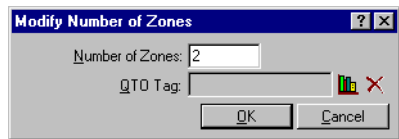


Figure 9-17 Modify Number of Zones Dialog Box

Modify Number of Zones Dialog Box Definitions

Option	Icon	Function
Number of Zones		Make a new entry for the number of zones that a controller will regulate.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
		Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.

Equipment Database Editor

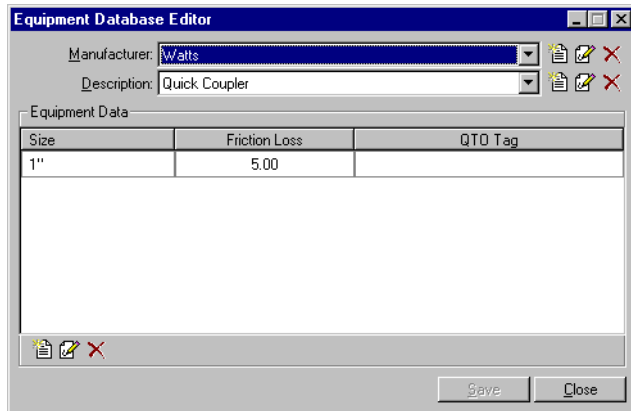











Figure 9-18 Equipment Database Editor Dialog Box

Equipment Database Editor Dialog Box Definitions

Option	Icon	Function
Manufacturer		The Manufacturer drop list allows you to select the manufacturer of your choice from a list of available manufacturers.
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Equipment Database Editor dialog box redisplay. Click on the New Description icon to enter a description for the new entry. After you have typed the description in the New Description dialog box, click on OK. The Equipment Database Editor dialog box redisplay. Click on the New Size icon and enter the size of the equipment and the friction loss value. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Size dialog box when finished entering the data. The information displays in the Equipment Data section of the Equipment Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Equipment Database Editor dialog box redisplay with the modified manufacturer name. Click on the Save button to save the data to the equipment database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer will be removed from the Equipment Database Editor dialog box. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.
Description		This drop list displays descriptive statements that identify the equipment in the database for the selected manufacturer.
New Description		Click on this icon to add an equipment description for a selected manufacturer. Select the desired manufacturer from the Manufacturer drop list. Click on the New Description icon and type the equipment description. Click on OK in the New Description dialog box. The Equipment Database Editor dialog box redisplay. Click on the New Size icon and enter the equipment size and friction loss values. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Size dialog box when finished entering the data. The information displays in the Equipment Data section of the Equipment Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Description		Click on this icon to change the description for a selected item. Select the description that you want to change from the Description drop list. Click on the Modify Description icon. Edit the information in the Modify Description dialog box and click on OK. Click on Save in the Equipment Database Editor dialog box to save the information to the equipment database.

Equipment Database Editor Dialog Box Definitions

Option	Icon	Function
Delete Description		Click on this icon to delete a description and its data. A dialog box displays, asking you to confirm your intention to delete the selected description. If you want to delete the description, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the description will be removed from the Equipment Database Editor dialog box. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.
Size		This drop list displays the size of the currently selected equipment.
Friction Loss		This value is the loss of pressure as water flows through the piping system.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
New Size		Click on this icon to enter a new size for a selected item. After you have entered the size and friction loss values in the New Size dialog box, click on OK. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.
Modify Size		Click on this icon to change a selected size. Edit the size and friction loss values in the Modify Size dialog box and click on OK. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.
Delete Size		Click on this icon to delete a selected size and its data. A dialog box displays, asking you to confirm your intention to delete the selected size. If you want to delete the size, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the size and its data will be removed from the Equipment Database Editor dialog box. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.

New Size

ICON: 

Click on this icon to display the New Size dialog box and enter a new size for a selected item. After you have entered the size and friction loss values in the New Size dialog box, click on OK. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.

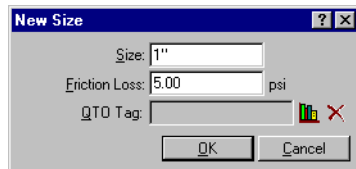




Figure 9-19 New Size Dialog Box

New Size Dialog Box Definitions

Option	Icon	Function
Size		This value is the size of the currently selected equipment.
Friction Loss		This value is the loss of pressure as water flows through the piping system.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
		Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.

Modify Size

ICON: 

Click on this icon to change a selected size. Edit the size and friction loss values in the Modify Size dialog box and click on OK. Click on Save in the Equipment Database Editor dialog box to save the changes to the equipment database.

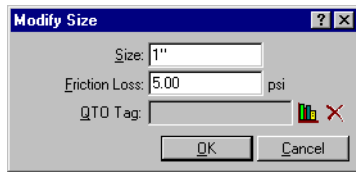




Figure 9-20 Modify Size Dialog Box

Modify Size Dialog Box Definitions

Option	Icon	Function
Size		This value is the size of the currently selected equipment.
Friction Loss		This value is the loss of pressure as water flows through the piping system.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
		Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.

Pump Database Editor

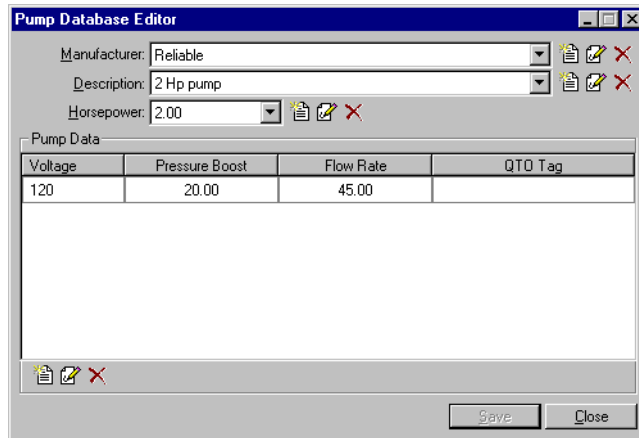










Figure 9-21 Pump Database Editor Dialog Box

Pump Database Editor Dialog Box Definitions

Option	Icon	Function
Manufacturer		The Manufacturer drop list allows you to select the manufacturer of your choice from a list of available pump manufacturers.
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Pump Database Editor dialog box redisplay. Click on the New Description icon to enter a description for the new entry. After you have typed the description in the New Description dialog box, click on OK. The Pump Database Editor dialog box redisplay. Click on the New Horsepower icon and enter the horsepower of the equipment. Click on OK in the New Horsepower dialog box. The Pump Database Editor dialog box redisplay. Click on the New Voltage icon to display the New Voltage dialog box. Enter the voltage, pressure boost, and flow rate information. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Voltage dialog box when you are finished entering information. The information displays in the Pump Data section of the Pump Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Pump Database Editor dialog box redisplay with the modified manufacturer name. Click on the Save button to save the data to the equipment database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer and its data will be removed from the Pump Database Editor dialog box. Click on Save in the Pump Database Editor dialog box to save the changes to the equipment database.
Description		This drop list displays descriptive statements that identify the equipment in the database for the selected manufacturer.
New Description		Click on this icon to add an equipment description for a selected manufacturer. Select the desired manufacturer from the Manufacturer drop list. Click on the New Description icon and type the equipment description. Click on OK in the New Description dialog box. The Pump Database Editor dialog box redisplay. Click on the New Horsepower icon and enter the horsepower of the equipment. Click on OK in the New Horsepower dialog box. The Pump Database Editor dialog box redisplay. Click on the New Voltage icon to display the New Voltage dialog box. Enter the voltage, pressure boost, and flow rate information. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Voltage dialog box when you are finished entering information. The information displays in the Pump Data section of the Pump Database Editor dialog box. Click on Save to add the information to the equipment database.

Pump Database Editor Dialog Box Definitions

Option	Icon	Function
Modify Description		Click on this icon to change the description for a selected item. Select the description that you want to change from the Description drop list. Click on the Modify Description icon. Edit the information in the Modify Description dialog box and click on OK. Click on Save in the Pump Database Editor dialog box to save the information to the equipment database.
Delete Description		Click on this icon to delete a description and its data. A dialog box displays, asking you to confirm your intention to delete the selected description. If you want to delete the description, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the description will be removed from the Pump Database Editor dialog box. Click on Save in the Pump Database Editor dialog box to save the changes to the equipment database.
Horsepower		This drop list displays the horsepower value for the selected item.
New Horsepower		Click on this icon to enter a new horsepower value. Click on OK in the New Horsepower dialog box. The Pump Database Editor dialog box redisplay. Click on the New Voltage icon to display the New Voltage dialog box. Enter the voltage, pressure boost, and flow rate information. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Voltage dialog box when you are finished entering information. The information displays in the Pump Data section of the Pump Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Horsepower		Click on this icon to modify a selected horsepower value. Click on OK in the Modify Horsepower dialog box. The Pump Database dialog box redisplay. Edit any other information as needed. Click on Save to save the information to the equipment database.
Delete Horsepower		Click on this icon to delete a selected horsepower value and its related data. A dialog box displays, asking you to confirm your intention to delete the selected horsepower. If you want to delete the horsepower, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the entry will be removed from the Pump Database Editor dialog box. Click on Save in the Pump Database Editor dialog box to save the changes to the equipment database.
Voltage		This column displays the selected pump's voltage value.
Pressure Boost		This value is the increase in water pressure produced by the selected pump.
Flow Rate		This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
New Voltage		Click on this icon to enter a new voltage value for an item. Enter the voltage, pressure boost, and flow rate values in the New Voltage dialog box. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK. The Pump Database Editor dialog box redisplay with the new pump data. Click on Save to save the information to the equipment database.
Modify Voltage		Click on this icon to change a selected voltage value. Enter changes to the voltage, pressure boost, and flow rate information in the Modify Voltage dialog box. Click on OK in the Modify Voltage dialog box when you are finished entering information. The information displays in the Pump Data section of the Pump Database Editor dialog box. Click on Save to save the information to the equipment database.
Delete Voltage		Click on this icon to delete a voltage value and its data. A dialog box displays, asking you to confirm your intention to delete the selected voltage. If you want to delete the voltage, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the voltage and its data will be removed from the Pump Database Editor dialog box. Click on Save in the Pump Database Editor dialog box to save the changes to the equipment database.

New Voltage

ICON: 

Click on the New Voltage icon to display the New Voltage dialog box. Enter the voltage, pressure boost, and flow rate information. If desired, you can assign a QTO ID to the item by clicking on the QTO Library icon. Click on OK in the New Voltage dialog box when you are finished entering information.

The information displays in the Pump Data section of the Pump Database Editor dialog box. Click on Save to add the information to the equipment database.

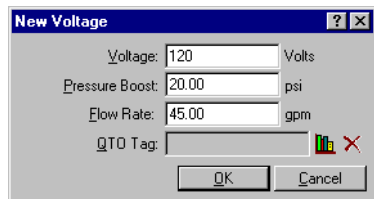




Figure 9-22 New Voltage Dialog Box

New Voltage Dialog Box Definitions

Option	Icon	Function
Voltage		This value is the selected pump's voltage value.
Pressure Boost		This value is the increase in water pressure produced by the selected pump.
Flow Rate		This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes. Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.

Modify Voltage



ICON:

Click on this icon to change a selected voltage value. Enter changes to the voltage, pressure boost, and flow rate information in the Modify Voltage dialog box. Click on OK in the Modify Voltage dialog box when you are finished entering information. The information displays in the Pump Data section of the Pump Database Editor dialog box. Click on Save to save the information to the equipment database.

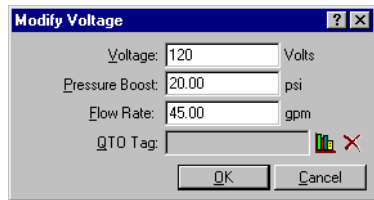


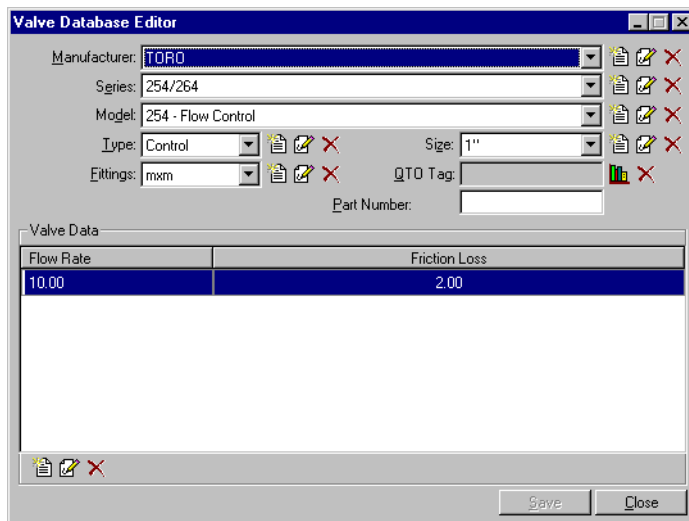


Figure 9-23 Modify Voltage Dialog Box

Modify Voltage Dialog Box Definitions

Option	Icon	Function
Voltage		This value is the selected pump's voltage value.
Pressure Boost		This value is the increase in water pressure produced by the selected pump.
Flow Rate		This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
QTO Tag		This value is an ID that is assigned for quantity takeoff purposes.
		Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry.
		If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon.
		Review the Quantity Takeoff documentation for additional information.

Valve Database Editor



Valve Database Editor

Manufacturer: TORO

Series: 254/264

Model: 254 - Flow Control

Type: Control

Size: 1"

Fittings: mxm

QTO Tag:

Part Number:







Valve Data

Flow Rate	Friction Loss
10.00	2.00











Save Close

Figure 9-24 Valve Database Editor Dialog Box








Valve Database Editor Dialog Box Definitions

Option	Icon	Function
Manufacturer		The Manufacturer drop list allows you to select the manufacturer of your choice from a list of available manufacturers.
New Manufacturer		Click on this icon to add the name of a new manufacturer to the database. After a name has been entered and you click on OK in the New Manufacturer dialog box, the Valve Database Editor dialog box redisplay. Click on the New Series icon to enter the series data for the new entry. Click on OK in the New Series dialog box. The Valve Database Editor dialog box redisplay. Click on the New Model icon to enter the model data. Click on OK in the New Model dialog box. The Valve Database Editor dialog box redisplay. Click on the New Type icon to enter valve type information. Click on OK in the New Type dialog box. The Valve Database Editor dialog box redisplay. Click on the New Size icon and enter the valve size. Click on OK in the New Size dialog box. The Valve Database Editor dialog box redisplay. Click on the New Fitting icon and enter the fitting type in the New Fitting dialog box. Click on OK. The Valve Database Editor dialog box redisplay. If desired, you can click on the QTO Library icon to display the Manage Database dialog box and assign an Item ID to the valve. Type a part number for the valve in the Part Number edit field. Click on the New Flow Rate icon and enter the flow rate and friction loss values. Click on OK in the New Flow Rate dialog box. The information displays in the Valve Data section of the Valve Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Manufacturer		Click on this icon to modify a manufacturer's name. Select the name that you want to modify from the Manufacturer drop list and click on the Modify Manufacturer icon. Change the name in the Modify Manufacturer dialog box and click on OK. The Valve Database Editor dialog box redisplay with the modified manufacturer name. Click on the Save button to save the data to the equipment database.
Delete Manufacturer		Click on this icon to delete a manufacturer and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected manufacturer. If you want to delete the manufacturer, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the manufacturer and its data will be removed from the Valve Database Editor dialog box. Click on Save in the Valve Database Editor dialog box to save the changes to the equipment database.
Series		This drop list displays the valve series information for the selected manufacturer.
New Series		Click on this icon to add a series entry for the selected manufacturer. Click on OK in the New Series dialog box. The Valve Database Editor dialog box redisplay. Click on the New Model icon to enter the model data. Click on OK in the New Model dialog box. The Valve Database Editor dialog box redisplay. Click on the New Type icon to enter valve type information. Click on OK in the New Type dialog box. The Valve Database Editor dialog box redisplay. Click on the New Size icon and enter the valve size. Click on OK in the New Size dialog box. The Valve Database Editor dialog box redisplay. Click on the New Fitting icon and enter the fitting type in the New Fitting dialog box. Click on OK. The Valve Database Editor dialog box redisplay. If desired, you can click on the QTO Library icon to display the Manage Database dialog box and assign an Item ID to the valve. Type a part number for the valve in the Part Number edit field. Click on the New Flow Rate icon and enter the flow rate and friction loss values. Click on OK in the New Flow Rate dialog box. The information displays in the Valve Data section of the Valve Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Series		Click on this icon to modify a series' name. Select the name that you want to modify from the Series drop list and click on the Modify Series icon. Change the information in the Modify Series dialog box and click on OK. The Valve Database Editor dialog box redisplay with the modified information. Change any other information as necessary and click on Save to save the data to the equipment database.
Delete Series		Click on this icon to delete a series and all of its data. A dialog box displays, asking you to confirm your intention to delete the selected series. If you want to delete the series, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the series and its data will be removed from the Valve Database Editor dialog box. Click on Save in the Valve Database Editor dialog box to save the changes to the equipment database.
Model		This drop list displays the model information for the selected series.

Valve Database Editor Dialog Box Definitions

Option	Icon	Function
New Model		Click on this icon to add a model entry for a manufacturer series. Click on OK in the New Model dialog box. The Valve Database Editor dialog box redisplay. Click on the New Type icon to enter valve type information. Click on OK in the New Type dialog box. The Valve Database Editor dialog box redisplay. Click on the New Size icon and enter the valve size. Click on OK in the New Size dialog box. The Valve Database Editor dialog box redisplay. Click on the New Fitting icon and enter the fitting type in the New Fitting dialog box. Click on OK. The Valve Database Editor dialog box redisplay. If desired, you can click on the QTO Library icon to display the Manage Database dialog box and assign an Item ID to the valve. Type a part number for the valve in the Part Number edit field. Click on the New Flow Rate icon and enter the flow rate and friction loss values. Click on OK in the New Flow Rate dialog box. The information displays in the Valve Data section of the Valve Database Editor dialog box. Click on Save to add the information to the equipment database.
Modify Model		Click on this icon to modify a model's name. Select the name that you want to modify from the Model drop list and click on the Modify Model icon. Change the information in the Modify Model dialog box and click on OK. The Valve Database Editor dialog box redisplay with the modified information. Change any other information as necessary and click on Save to save the information to the equipment database.
Delete Model		Click on this icon to delete a model's name and all its data. A dialog box displays, asking you to confirm your intention to delete the selected model. If you want to delete the model, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the model and its data will be removed from the Valve Database Editor dialog box. Click on Save in the Valve Database Editor dialog box to save the changes to the equipment database.
Type		This drop list displays the type of valve (e.g., overflow, butterfly, pressure relief, brass, check, flap, control, etc.).
New Type		Click on the New Type icon to enter valve type information. Click on OK in the New Type dialog box. The Valve Database Editor dialog box redisplay. Add any other information as necessary and click on Save to add the information to the equipment database.
Modify Type		Click on this icon to modify a valve type. Select the entry that you want to modify from the Type drop list and click on the Modify Type icon. Change the data in the Modify Type dialog box and click on OK. The Valve Database Editor dialog box redisplay with the modified information. Change any other information as necessary and click on Save to save the information to the equipment database.
Delete Type		Click on this icon to delete a valve type and all its data. A dialog box displays, asking you to confirm your intention to delete the selected type. If you want to delete the type, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the valve type and its data will be removed from the Valve Database Editor dialog box. Click on Save in the Valve Database Editor dialog box to save the changes to the equipment database.
Size		This drop list displays the size of the valve opening through which water will flow.
New Size		Click on the New Size icon to enter a valve size. Click on OK in the New Size dialog box. The Valve Database Editor dialog box redisplay. Add any other information as necessary and click on Save to add the information to the equipment database.
Modify Size		Click on this icon to modify a valve size. Select the size that you want to modify from the Size drop list and click on the Modify Size icon. Change the number in the Modify Size dialog box and click on OK. The Valve Database Editor dialog box redisplay with the modified information. Change any other information as necessary and click on Save to save the data to the equipment database.
Delete Size		Click on this icon to delete a valve size and all its data. A dialog box displays, asking you to confirm your intention to delete the selected size. If you want to delete the size, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the size and its data will be removed from the Valve Database Editor dialog box. Click on Save in the Valve Database Editor dialog box to save the changes to the equipment database.
Fittings		This drop list shows the various valve-to-pipe connection methods. These include fittings such as flanged, in line, female adapters, male adapters, ells, tees, etc. Fittings may be threaded, barbed, soldered, or welded to the pipe.
New Fitting		Click on this icon to enter a new fitting type. Click on OK in the New Fitting dialog box. The Valve Database Editor dialog box redisplay. Change any other information as necessary and click on Save to add the information to the equipment database.

Valve Database Editor Dialog Box Definitions

Option	Icon	Function
Modify Fitting		Click on this icon to modify a fitting entry. Select the fitting that you want to modify from the Fittings drop list and click on the Modify Fitting icon. Change the information in the Modify Fitting dialog box and click on OK. The Valve Database Editor dialog box redisplay with the modified information. Change any other information as necessary and click on Save to save the data to the equipment database.
Delete Fitting		Click on this icon to delete a fitting entry and all its data. A dialog box displays, asking you to confirm your intention to delete the selected fitting. If you want to delete the fitting, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the fitting and its data will be removed from the Valve Database Editor dialog box. Click on Save in the Valve Database Editor dialog box to save the changes to the equipment database.
QTO Tag	 	This value is an ID that is assigned for quantity takeoff purposes. Click on the QTO Library icon to display the Manage Database dialog box (Figure 6-5 on page 113). Highlight the desired information and click on OK. The QTO Tag field displays the Item ID assigned to the selected entry. If you want to clear the QTO tag assigned to the item, click on the Clear QTO Tag icon. Review the Quantity Takeoff documentation for additional information.
Part Number		Enter the valve's part number in this edit field.
Flow Rate		This value reflects the amount of water flow through the pipe in gallons per minute or liters per minute.
Friction Loss		This value is the loss of pressure as water flows through the piping system.
New Flow Rate		Click on this icon to display the New Flow Rate dialog box. Enter the flow rate and friction loss and click on OK. Review the information in the Valve Database Editor dialog box and click on Save to save the data to the equipment database.
Modify Flow Rate		Highlight the flow rate that you want to modify in the Valve Database Editor dialog box. Click on the Modify Flow Rate icon to display the Modify Flow Rate dialog box. Change the flow rate and friction loss as desired. Click on OK. The modified data displays in the Valve Database Editor dialog box. Click on Save to save the data to the equipment database.
Delete Flow Rate		Highlight the flow rate that you want to delete in the Valve Database Editor dialog box. Click on the Delete Flow Rate icon. A dialog box displays, asking you to confirm your intention to delete the selected flow rate. If you want to delete the flow rate, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the flow rate will be removed from the Valve Database Editor dialog box. Click on Save to save the change to the equipment database.

New Flow Rate

ICON: 

Click on this icon to display the New Flow Rate dialog box. Enter the flow rate and friction loss and click on OK. Review the information in the Valve Database Editor dialog box and click on Save to save the data to the equipment database.

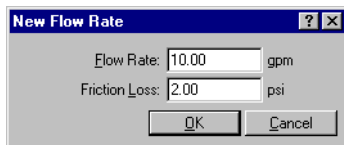


Figure 9-25 New Flow Rate Dialog Box

New Flow Rate Dialog Box Definitions

Option	Function
Flow Rate	This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
Friction Loss	This value is the loss of pressure as water flows through the piping system.

Modify Flow Rate



Highlight the flow rate that you want to modify in the Valve Database Editor dialog box. Click on the Modify Flow Rate icon to display the Modify Flow Rate dialog box. Change the flow rate and friction loss as desired. Click on OK. The modified data displays in the Valve Database Editor dialog box. Click on Save to save the data to the equipment database.

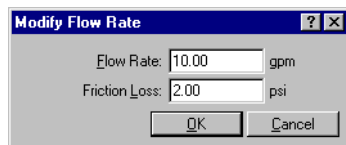


Figure 9-26 Modify Flow Rate Dialog Box

Modify Flow Rate Dialog Box Definitions

Option	Function
Flow Rate	This value is the amount of water flow through the pipe in gallons per minute or liters per minute.
Friction Loss	This value is the loss of pressure as water flows through the piping system.

Water Meter Database Editor

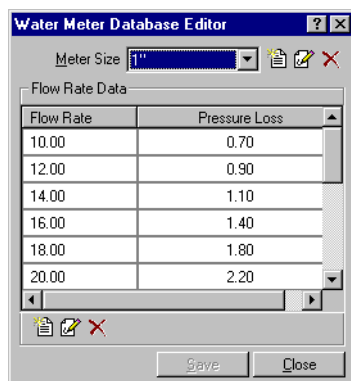








Figure 9-27 Water Meter Database Editor Dialog Box

Water Meter Database Editor Dialog Box Definitions

Option	Icon	Function
Meter Size		Select from this drop list the desired meter size. Flow rate and pressure loss values for that size are displayed in the Flow Rate Data section of the Water Meter Database Editor dialog box.
New Size		Click on this icon to enter a new meter size in the database. Click on OK in the New Size dialog box. The Water Meter Database Editor dialog box redisplay. Click on the New Flow Rate icon and enter the flow rate and pressure loss values in the New Flow Rate dialog box. Click on OK. Click on Save in the Water Meter Database Editor dialog box to save the data to the equipment database.
Modify Size		Click on this icon to modify a selected meter size. Click on OK in the Modify Size dialog box. Change any other information as necessary and click on Save to save the data to the equipment database.
Delete Size		Highlight the size that you want to delete in the Water Meter Database Editor dialog box. Click on the Delete Size icon. A dialog box displays, asking you to confirm your intention to delete the selected size. If you want to delete the size, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the size will be removed from the Water Meter Database Editor dialog box. Click on Save to save the change to the equipment database.

Water Meter Database Editor Dialog Box Definitions

Option	Icon	Function
Flow Rate		This value reflects the amount of water flow through the meter in gallons per minute or liters per minute.
Pressure Loss		This value is the loss of pressure as water flows through the piping system.
New Flow Rate		Click on this icon to display the New Flow Rate dialog box. Enter the flow rate and pressure loss and click on OK. Review the information in the Water Meter Database Editor dialog box and click on Save to save the data to the equipment database.
Modify Flow Rate		Highlight the flow rate that you want to modify in the Water Meter Database Editor dialog box. Click on the Modify Flow Rate icon to display the Modify Flow Rate dialog box. Change the flow rate and pressure loss as desired. Click on OK. The modified data displays in the Water Meter Database Editor dialog box. Click on Save to save the data to the equipment database.
Delete Flow Rate		Highlight the flow rate that you want to delete in the Water Meter Database Editor dialog box. Click on the Delete Flow Rate icon. A dialog box displays, asking you to confirm your intention to delete the selected flow rate. If you want to delete the flow rate, click on Yes. If you want to cancel the command, click on No. If you click on Yes, the flow rate will be removed from the Water Meter Database Editor dialog box. Click on Save to save the change to the equipment database.

New Flow Rate



Click on this icon to display the New Flow Rate dialog box. Enter the flow rate and pressure loss and click on OK. Review the information in the Water Meter Database Editor dialog box and click on Save to save the data to the equipment database.

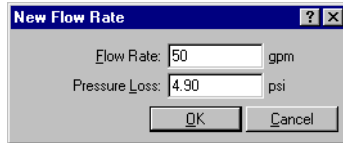


Figure 9-28 New Flow Rate Dialog Box

New Flow Rate Dialog Box Definitions

Option	Function
Flow Rate	This value is the amount of water flow through the meter in gallons per minute or liters per minute.
Pressure Loss	This value is the loss of pressure as water flows through the piping system.

Modify Flow Rate



Click on this icon to display the Modify Flow Rate dialog box. Modify the flow rate and pressure loss and click on OK. Review the information in the Water Meter Database Editor dialog box and click on Save to save the data to the equipment database.

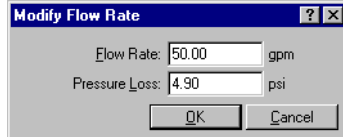


Figure 9-29 Modify Flow Rate Dialog Box

Modify Flow Rate Dialog Box Definitions

Option	Function
Flow Rate	This value is the amount of water flow through the meter in gallons per minute or liters per minute.
Pressure Loss	This value is the loss of pressure as water flows through the piping system.

TOOLS

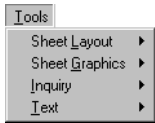


Figure 10-1 Tools Menu

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CHAPTER

10

Sheet Layout

ADVANCED IRRIGATION ➤ TOOLS ➤ SHEET LAYOUT

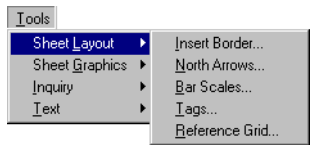


Figure 10-2 Sheet Layout Menu

The Sheet Layout submenu provides you with commonly used items for your design. You have the ability to insert a border (title block), North Arrows, bar scales, and tags. You also have the ability to place a reference grid into your drawing to help you with site layout.

Insert Border

ADVANCED IRRIGATION ➤ TOOLS ➤ SHEET LAYOUT ➤ INSERT BORDER

KEY-IN COMMAND: ai border

The Insert Border command allows you to place a border in your CAD graphic. You can select the symbol, orientation, and the rotation angle for the border.

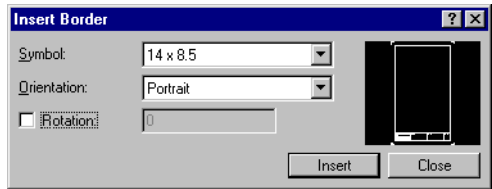


Figure 10-3 Insert Border Dialog Box

Insert Border Dialog Box Definitions


Option	Function
Symbol	Select from predrawn title block symbols.
Orientation	Select either Landscape or Portrait.
Rotation	When toggled on, this option indicates the rotation angle for the title block once it is inserted.

QuickSteps

1. **Select Tools ➔ Sheet Layout ➔ Insert Border.**

The Insert Border dialog box (above) displays.

2. **Select the border layout of your choice from the Symbol drop list.**
3. **Select the orientation for the border.**

 *Note that the thumbnail picture in the dialog box reflects the symbol and orientation selections.*

4. **Click on Insert.**

You are prompted to select the insertion point.

5. **Click on the desired insertion point.**
The border is inserted into the drawing.
6. **Press the Esc key or right mouse button.**
7. **Click on Close in the Insert Border dialog box.**

Insert North Arrow

ADVANCED IRRIGATION ⇨ TOOLS ⇨ SHEET LAYOUT ⇨ NORTH ARROWS

KEY-IN COMMAND: ai northarrow

The Insert North Arrow command allows you to insert various symbols representing a North Arrow in the drawing. North Arrows are needed to reference directions and angles that may be provided on items such as property lines or sidewalks.

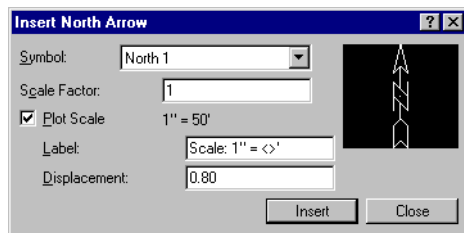


Figure 10-4 Insert North Arrow Dialog Box

Insert North Arrow Dialog Box Definitions

Option	Function
Symbol	Select a North Arrow symbol from this drop list. The thumbnail image in the dialog box changes according to the symbol selected.
Scale Factor	This value defines the scale multiplier of the symbol.
Plot Scale	This value is the scale at which the drawing is plotted.
Label	This field is active when Plot Scale is toggled on. This is what the North Arrow label will say. Edit the scale information as necessary.
Displacement	This field is active when Plot Scale is toggled on. This value is the distance between the label and the North Arrow symbol.

QuickSteps

1. **Select Tools → Sheet Layout → North Arrows.**
The Insert North Arrow dialog box (above) displays.
2. **Select the North Arrow symbol to use from the Symbol drop list.**
3. **Enter the Scale Factor for the North Arrow.**
4. **Toggle on Plot Scale if desired. If this option is toggled on, review and edit as necessary the information in the Label and Displacement fields.**
5. **Click on Insert.**
You are prompted to select the insertion point.
6. **Click on the desired insertion point.**
The arrow is placed. If Plot Scale was toggled on, a label will accompany the North Arrow symbol.
7. **Press the Esc key or right mouse button.**

8. Click on Close in the Insert North Arrow dialog box.

The following is a North Arrow example.

Example



Figure 10-5 North Arrow Example

Insert Bar Scale

ADVANCED IRRIGATION → TOOLS → SHEET LAYOUT → BAR SCALES

KEY-IN COMMAND: ai barscale

The Insert Bar Scale command allows you to insert symbols representing bar scales into the drawing to specify the drawing scale. The drawing scale is useful when plotting hard copies of the drawing. When referencing the drawing sheet, you can use a scale to measure and verify distances in the field.

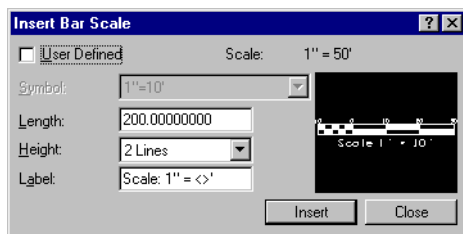


Figure 10-6 Insert Bar Scale Dialog Box

Insert Bar Scale Dialog Box Definitions

Option	Function
User Defined	Toggle on this option if you want to place a user-defined bar scale. This enables the Symbol drop list and disables the Length, Height, and Label fields. If this toggle is on, the Length, Height, and Label values are used to construct a bar scale at the time you click on the Insert button.
Scale	This value is the scale at which the drawing is plotted.
Symbol	When User Defined is toggled on, select the symbol from this drop list of predefined scales.
Length	This option is not active when User Defined is toggled on. This edit field allows you to specify the length of the bar scale.
Height	This option is not active when User Defined is toggled on. This drop list allows you to specify how many lines are used for the bar scale. The available options are one or two lines.
Label	This option is not active when User Defined is toggled on. This edit field allows you to specify how you want the bar scale to be labeled when it is placed in the drawing.

QuickSteps

1. Select Tools → Sheet Layout → Bar Scales.
The Insert Bar Scale dialog box (above) displays.
2. Toggle off User Defined.
3. Complete the Length, Height, and Label information.

4. **Click on Insert.**
You are prompted to select the insertion point.
5. **Click on the desired insertion point.**
The bar scale is placed into the drawing.
6. **Press the Esc key or right mouse button.**
7. **Click on Close in the Insert Bar Scale dialog box.**

Example

The figure below is an example of the Insert Bar Scale command.

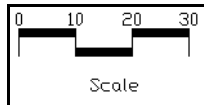


Figure 10-7 Bar Scale Example

Tags

ADVANCED IRRIGATION ➤ TOOLS ➤ SHEET LAYOUT ➤ TAGS

KEY-IN COMMAND: ai tags

The Tags command allows you to insert various symbols representing tags into the drawing, and in some instances, to specify text associated with the tags. A tag can be used to call out a specific detail of an item. For example, when laying out a sidewalk, it may go between an existing grove of trees. You may want to place a tag stating that on-site modification may be needed to avoid the drip line.

Symbol Library

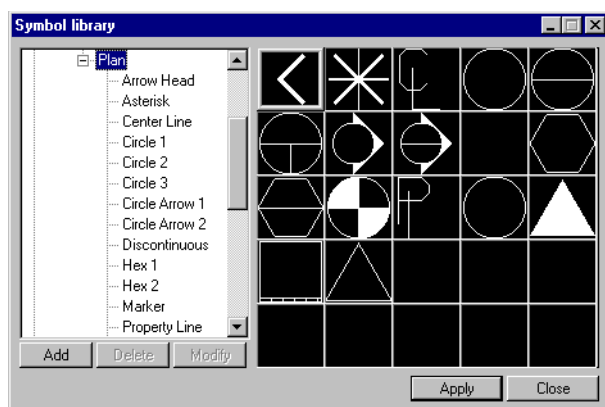


Figure 10-8 Symbol library Dialog Box

Symbol Library Dialog Box Definitions

Option	Function
List box	This box allows you to select the desired tag symbol by name.
Symbol	This display allows you to graphically select the desired tag symbol.
Add	Use this button to add your own symbol to the highlighted group and class. You can select an existing block/cell or just select CAD entities and have them stored as a symbol.
Delete	Click on this button to delete a symbol from the list of available symbols to insert.
Modify	Click on this button to modify a symbol. You can select an existing block/cell or just select CAD entities and have them stored as a symbol.

Settings

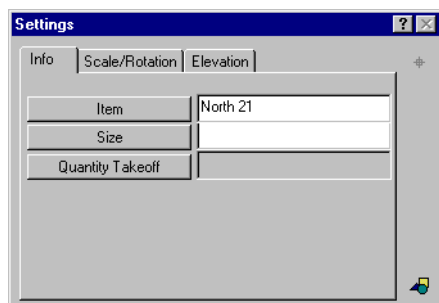


Figure 10-9 Settings Dialog Box – Info Tab

Settings Dialog Box – Info Tab Definitions

Option	Icon	Function
PIC		This icon is always disabled when the Info tab is selected.
Item		This edit field shows the name of the symbol that you select from the Symbol Library dialog box.
Size		This edit field allows you to specify a size descriptor.
Quantity Takeoff		Click on this button if you want to assign a Quantity Takeoff tag to the symbol you are inserting.
CAD Settings		Click on this icon to specify the CAD settings for the symbols you are inserting.

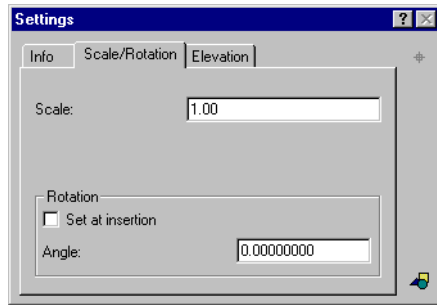


Figure 10-10 Settings Dialog Box – Scale/Rotation Tab

Settings Dialog Box – Scale/Rotation Tab Definitions

Option	Icon	Function
PIC		Click on this icon to graphically select a base point and end point that set the scale and/or rotation angle.
Scale		This controls the size of the symbol when it is inserted. The Insert Symbols from Library command does use your horizontal plot scale, so be sure to set your X and Y scale factors to the correct value. When the symbol is inserted into the drawing, the symbol scale is multiplied by the plot scale.
Set at insertion		Toggle this option on to be prompted for the rotation angle in CAD. When this is toggled off, specify the rotation angle in the Angle edit field below.
Angle		Enter the rotation angle for the symbol to be inserted at according to your project angular units.
CAD Settings		Click on this icon to specify the CAD settings for the symbols you are inserting.

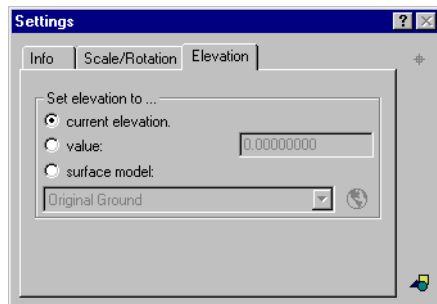


Figure 10-11 Settings Dialog Box – Elevation Tab

Settings Dialog Box – Elevation Tab Definitions

Option	Icon	Function
PIC		Click on this icon to graphically select a point in the drawing whose elevation is placed in the value edit field. The active elevation of the drawing is displayed in the value edit field.
current elevation		When this radio button is on, the symbol is inserted at the current elevation set in CAD.
value		When this radio button is on, enter the elevation value in the edit field next to it. This is the elevation the symbol is inserted at in CAD. You may also graphically select a base point by clicking on the PIC icon and then selecting a point in the drawing.
surface model		Turn on this radio button to set the elevation of the symbol by inheriting it from the specified surface model. Click on the All Surface Models icon to select a surface model from another project.
CAD Settings		Click on this icon to specify the CAD settings for the symbols you are inserting.

QuickSteps

1. Select Tools → Sheet Layout → Tags.

The Symbol library dialog box (Figure 10-8 on page 164) displays.

2. Select the desired tag and click on Apply.

You are prompted:

Insertion Point:

3. Click on the desired insertion point.

The symbol is placed.

4. Click on Close in the Symbol library dialog box.

Example

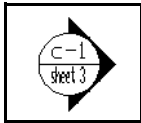



Figure 10-12 Tags Example

Draw Reference Grid

ADVANCED IRRIGATION → TOOLS → SHEET LAYOUT → REFERENCE GRID

KEY-IN COMMAND: ai refgrid

The Draw Reference Grid command allows you to lay out a reference grid on a site. This easy-to-use reference grid can be used to locate items in the drawing. For example, suppose you went to the site and took spot elevations every ten feet. You could use the Reference Grid command to lay out a 10 x 10 grid on the drawing. Once the grid is in the site, you could use the Spot Elevation command in **Surface Modeling** to represent the elevations taken in the field and simply select the intersection of the lines on the reference grid. This command is also useful for contractors who measure items on-site with a tape measure and then approximate their locations on the drawing. After you select Reference Grid, the Draw Reference Grid dialog box (below) displays.

 *The grid is placed on locked layers so you are able to use editing commands like Copy and Erase without affecting the placement of the grid.*

Draw Reference Grid

Major Grid
X Distance: 25.00
Y Distance: 25.00

Minor Grid
X Distance: 5.00
Y Distance: 5.00

Grid Base Point
X: 0.00
Y: 0.00

Grid End Point
X: 0.00
Y: 0.00



Extents Min Limits Min Extents Max Limits Max

Base Angle in Degrees: 0.00
Grid Elevation: 0.00
Output Style: Pline

OK Close

Figure 10-13 Draw Reference Grid Dialog Box

Draw Reference Grid Dialog Box Definitions

Option	Icon	Function
PIC		Clicking on this icon allows you to select/define a distance or value from the CAD graphic.
Major Grid – X Distance, Y Distance		The X- and Y- directions that the major grid follows are displayed in these edit fields.
Minor Grid – X Distance, Y Distance		These are the distances in the X- and Y- directions that the minor grid follows. This is a grid within a major grid square. See Figure 10-14 on page 168.
Grid Base Point – X and Y		These variables are the starting points for the grid.
Extents Min		This button will set the base point of the grid to the current setting for the drawing extents.
Limits Min		This button will set the base point of the grid to the current settings for the drawing limits.
Grid End Point – X and Y		These are ending points for the grid.
Extents Max		This button will set the end point of the grid to the current setting for the drawing extents.
Limits Max		This button will set the end point of the grid to the current settings for the drawing limits.
Base Angle in Degrees		This displays the rotation of the grid off the base angle (typically, 0 is to the right).
Grid Elevation		This displays the height, or Z- elevation, at which the grid is drawn.
Output Style		This is the type of entity from which the grid is composed. You have a choice of either polyline or mesh.
CAD Settings		Clicking on the CAD Settings icon allows you to set layer/level, color, and line type information. You may want to distinguish major vs. minor grid settings here.

QuickSteps**1. Select Tools → Sheet Layout → Reference Grid.**

The Draw Reference Grid dialog box (Figure 10-13 on page 166) displays.

2. Enter the desired values in the Major and Minor Grid X and Y Distance edit fields (e.g., 100, 10, respectively).**3. Click on the CAD Settings icon and change your layer/level to Grid. If Grid is not a choice, make a grid using the last edit field.****4. Change your grid base points and end points, e.g., (0, 0 and 500, 500).****5. Select an output style (e.g., Pline).****6. Click on OK.**

The grid entities are placed in the drawing.



Example

The example below is a reference grid that has a Major Grid X and Y setting of 10' and a Minor Grid X and Y setting of 1'. The base angle has been changed to 45 degrees.

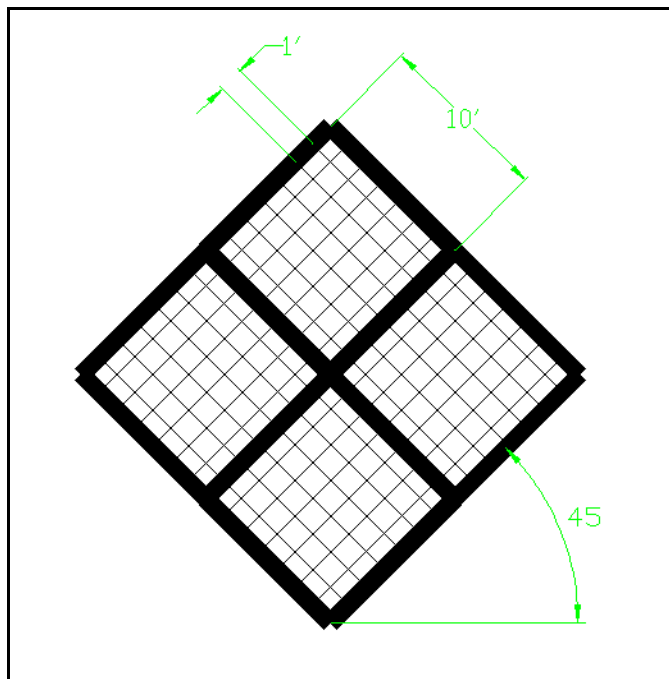


Figure 10-14 Draw Reference Grid Example

Sheet Graphics

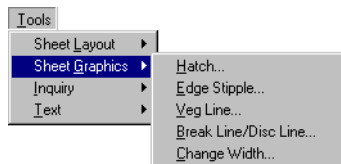


Figure 10-15 Sheet Graphics Menu

The sheet graphics options available to you include Hatch, Edge Stipple, Veg Line, Break Line/Disc Line, and Change Width. The following sections explain the sheet graphics options in detail.

Hatch Faces

ADVANCED IRRIGATION ➤ TOOLS ➤ SHEET GRAPHICS ➤ HATCH

KEY-IN COMMAND: ai hatch

The Hatch Faces command allows you to hatch areas with different patterns to represent different elements. For example, you could have several elements in the site that cannot be represented by blocks. You can create a closed polyline and apply a hatch pattern to represent the desired material, e.g., turf, concrete, paving, etc.

- ✓ **Make sure that you have a closed polyline or bounded area in the drawing before running this command.**



Figure 10-16 Hatch Faces Dialog Box

Hatch Faces Dialog Box Definitions

Option	Icon	Function
Pattern Preview		This is a graphic display of the selected hatch pattern.
PIC		Clicking on this icon allows you to graphically select the scale and angle of the hatching.
Pattern		Select the pattern name from this drop list or click on the PIC button to graphically select a pattern.
Scale		This value controls the scale of the hatch pattern. Smaller numbers make a denser hatch.
Angle		This value controls the angle of the hatch pattern. Zero degrees is to the right.
CAD Settings		Clicking on the CAD Settings icon allows you to set layer/level, color, and line type information. There is no optional tick mark.

QuickSteps

- Select Tools → Sheet Graphics → Hatch.**
The Hatch Faces dialog box (above) displays.
- Select a hatch pattern from the Pattern drop list.**
- In the Scale edit field, enter a scale for the pattern, e.g., . 5.**
- In the Angle edit field, enter an angle (if desired) for the pattern, e.g., 45.**
- Click on OK.**
You are prompted to select the closed polyline defining the area to be hatched.
- Select a closed polyline.**
The selected area is hatched.

Example

The following is an example of the Hatch command.

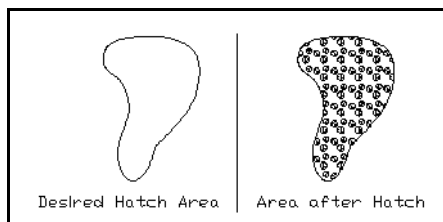


Figure 10-17 Hatch Area Example

Edge Stipple

KEY-IN COMMAND: ai stipl e

The Edge Stipple command is used to graphically indicate turf areas or other irregular-shaped planting beds by inserting a large number of dots along the edge of the area and gradually fading to fewer and fewer dots in the center. This technique is often used for rendering plan view site plans.

- ✓ **Always use a closed polyline as the border of your stippled area. Use simple areas with polylines that have not been splined. Do not use an area that is very small in one corner and very large in another area (use two polylines instead), as you do not want the offsets to overlap and give you poor results.**
- ✓ **Do not use a splined polyline.**

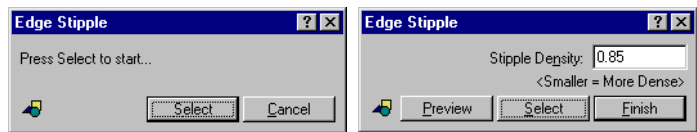


Figure 10-18 Edge Stipple Dialog Box – Press Select to Start, Stipple Density

Edge Stipple Dialog Box Definitions

Option	Icon	Function
CAD Settings		Clicking on this icon allows you to select the stipple color, layer name, line type, and width.
Stipple Density		You may enter a scale of stippling effect here or accept the stipple scale that displays. A higher number produces a less dense stipple.
Preview		If you want to see how a particular stipple density will look in the drawing, click on the Preview button.
Select		To proceed with the Edge Stipple command, click on the Select button. You are prompted to select a closed polyline. After you select a closed polyline, you are prompted to select the offset side and distance. After you do that, you see a preview of the stipple placed in the drawing and the Edge Stipple – Stipple Density dialog box displays.
Finish		Click on the Finish button when you are satisfied with the stipple settings. The edge stipple is placed in your drawing.

QuickSteps

- 1. Draw a closed polyline to define the area to be stippled.**
- 2. Select Tools → Sheet Graphics → Edge Stipple.**

The Edge Stipple dialog box (above) displays.
- 3. Click on the Select button to start.**

You are prompted to select a closed polyline.
- 4. Select a closed polyline.**

You are prompted to select the offset side and distance.
- 5. Select a point near the edge of the area to be stippled.**

The preview lines are pre-inserted into your drawing. The Edge Stipple dialog box redisplay and you have the option of changing the stipple density or accepting the given value.

Click on the Preview button to see the results of changes made to the stipple density value. If the preview is acceptable, click on the Finish button to place the edge stipple.

If you want to start the Edge Stipple command over, click on the Select button and cycle through the steps again until you are ready to place the edge stipple.

6. Click on the Finish button when you are satisfied with the appearance of the edge stipple.
7. Click on Cancel to end the command.

Example

The following is an example of the Edge Stipple command.

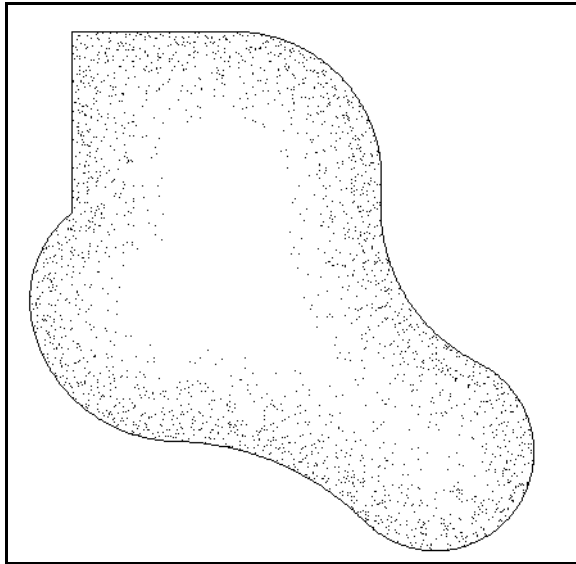


Figure 10-19 Edge Stipple Example

Draw Vegetation Line

ADVANCED IRRIGATION ➤ TOOLS ➤ SHEET GRAPHICS ➤ VEG LINE

KEY-IN COMMAND: ai vegl i ne

The purpose of a vegetation line is to illustrate the edges of large masses of plants, rather than showing individual plants. Trees are often shown as just an arc, while shrubs may be shown as either arcs or some type of jagged line. Ground covers can be expressed in many forms, including a scalloped edge or jagged lines.

Each line type is defined as a segment via a CAD block. The beginning of a segment must exactly match the endpoint of a segment in order to get a resulting line. The blocks are then exploded and a join is done to combine all the segments into a single line entry.

- ✓ **Do not use a polyline that has been splined. Splining causes many additional vertices to be inserted. You only want a simple outline of the area to be represented by the vegetation line if you are converting an existing polyline. In most cases, picking points gives you better results.**

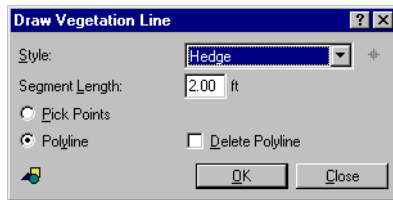




Figure 10-20 Draw Vegetation Line Dialog Box

Draw Vegetation Line Dialog Box Definitions

Option	Icon	Function
Style		The available vegetation line styles include: Hedge, ZigZag, Arcs, Circles, and Cloud.
PIC		Clicking on this icon allows you to graphically select points in the CAD graphic to determine the segment length.
Segment Length		The segment length is a distance multiplier. Since all line types are defined as a block, this is essentially the X- scale factor.
Pick Points		This radio button allows you to graphically pick points as the vegetation line is being placed. This requires no existing lines.
Polyline		This radio button allows you to utilize an existing polyline as the basis for the vegetation line.
Delete Polyline		This toggle, used in conjunction with the Polyline option, allows the polyline that is used to be deleted automatically once the vegetation line is placed.
CAD Settings		Clicking on this icon allows you to select symbol color, layer name, line type, and line width.

QuickSteps

1. Select Tools → Sheet Graphics → Veg Line.

The Draw Vegetation Line dialog box (above) displays.

2. Select a style from the Style drop list.

3. Specify a distance for each segment in the Segment Length edit field. You may type a value in the edit field, or click in the edit field and then on the PIC icon and select the base point and end point in the CAD graphic.

4. Choose either Pick points or Polyline.

A. Pick Points: If you select Pick points, click on OK.

You are prompted to select the start point.

Select the start point.

You are prompted to select the next point.

Select the next point.

Continue to select points as necessary.

Press Enter when you are finished.

The vegetation line is drawn in the CAD graphic.

B. Polyline: If you select Polyline, specify if you want to delete the existing polyline and click on OK.

You are prompted to select a polyline.

Select the polyline in the CAD graphic and press Enter.

The vegetation line is drawn in the CAD graphic.

5. Click on Close to end the command.

Example

The following is an example of a vegetation line drawn by selecting a polyline and deleting the polyline.

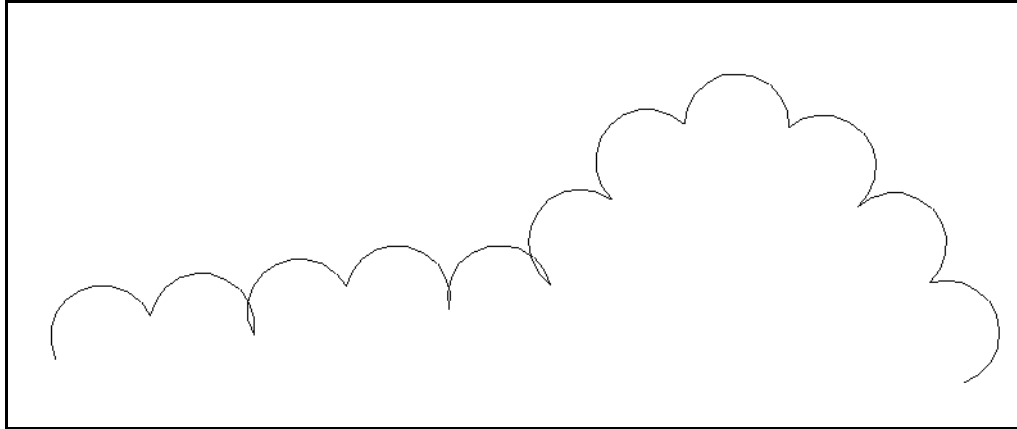



Figure 10-21 Veg/Pattern Command Example

Place Discontinuous Line

ADVANCED IRRIGATION → TOOLS → SHEET GRAPHICS → BREAK LINE/DISC LINE

KEY-IN COMMAND: ai breakl i ne

The Place Discontinuous Line command allows you to represent a breakline by either a zigzag or swoop. This command is useful for representing the area on a drawing that may continue onto another sheet, or to represent a distance that is longer than the distance displayed.

 Use this command to represent sheet breaks when plotting multiple sheets, or to represent lines with longer-than-shown lengths, such as in creating details.

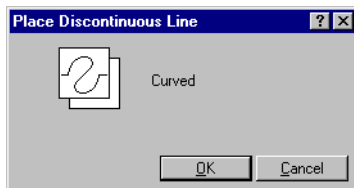


Figure 10-22 Place Discontinuous Line Dialog Box

Place Discontinuous Line Dialog Box Definition

Option	Function
Curved/ZigZag	Select the desired type of discontinuous line and click on OK.

QuickSteps

1. Select Tools → Sheet Graphics → Break Line/Disc Line.

The Place Discontinuous Line dialog box (above) displays.


2. **Select either Curved or ZigzZag and click on OK.**

You are prompted to select a line or polyline.

3. **Graphically select the desired line to break.**

You are prompted to select a first point.

4. **Graphically select the starting point of the break.**

 You may find a Near snap helpful.

You are prompted for a next point.

5. **Graphically select the ending point for the break.**

The discontinuous line is drawn.

Example

The following is an example of placing either a curve or a zigzag to represent a discontinuous line.

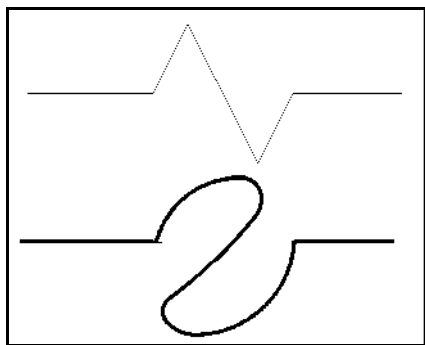


Figure 10-23 Discontinuous Line Example

Change Width



KEY-IN COMMAND: ai changewi dth

The Change Width command allows you to change the width of single or multiple polyline segments. For example, you may have several polylines in the drawing that represent houses and sheds. These polylines would look better if they were a thicker width. With this command you can select all of the building polylines and change their widths to the same width regardless of their previous width.

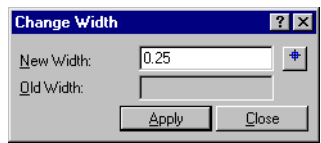



Figure 10-24 Change Width Dialog Box

Change Width Dialog Box Definitions

Option	Icon	Function
New Width		Enter the desired width for the selected segments in this edit field.
Old Width		This field displays information concerning the current width of the polyline to be changed.
PIC		Clicking on this icon allows you to define the width by picking two points.

QuickSteps

1. **Select Tools → Sheet Graphics → Change Width.**

You are prompted to select objects.

2. **Graphically select the desired polylines.**

3. **Press Enter.**

The Change Width dialog box (Figure 10-24 on page 174) displays.

4. **Enter the desired width in the New Width edit field.**

5. **Click on Apply.**

The selected segments display the new width.

Example

The figure below is an example of changing the width of several polylines.

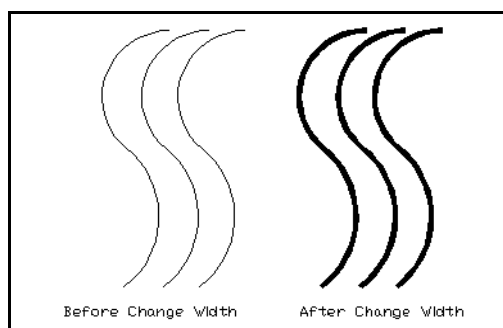


Figure 10-25 Width Example

Inquiry

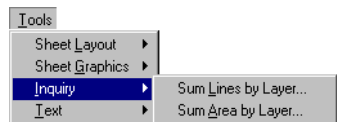


Figure 10-26 Inquiry Menu

Inquiry commands allow you to calculate the line segments and polyline segments on a selected object's layer/level or calculate the area of all closed polylines on a selected object's layer/level.

Sum Lines By Layer/Level



KEY-IN COMMAND: ai suml i nes

The Sum Lines by Layer/Level command allows you to select an object on a layer/level and totals the line segments and polyline segments on the selected object's layer/level. This command is useful if

there are a large number of items that need to be totaled and they are on the same layer/level. This command is also useful because there is less chance of missing an item to be totaled.

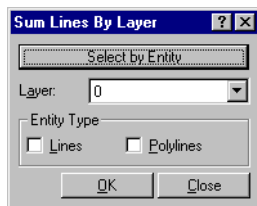


Figure 10-27 Sum Lines By Layer/Level Dialog Box

Sum Lines By Layer/Level Dialog Box Definitions

Option	Function
Select by Entity	This option allows you to select an item to set the layer/level.
Layer/Level	This is the layer/level you want to use for line/polyline length summaries.
Entity Type	<p>➔ Lines: Toggle on this option if you want to total the line segments on the selected object's layer/level.</p> <p>➔ Polylines: Toggle on this option if you want to total the polyline segments on the selected object's layer/level.</p>

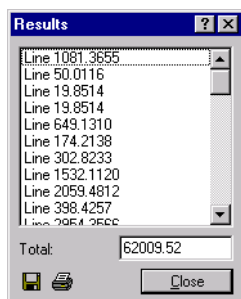




Figure 10-28 Sum Lines By Layer/Level Results Dialog Box

Sum Lines By Layer/Level Results Dialog Box Definitions

Option	Icon	Function
Area segments		This box lists all border length segments surrounding the area.
Total		This is the total area of all areas enclosed by the selected borders.
Save to Disk		Click on the Save to Disk icon to save the results to a disk.
Send to Printer		Click on the Send to Printer icon to print the results.

QuickSteps

1. **Select Tools → Inquiry → Sum Lines by Layer/Level.**
The Sum Lines By Layer/Level dialog box (Figure 10-27 above) displays.
2. **Select a layer from the Layer drop list or click on the Select by Entity button to select a layer/level by clicking on an object. If you click on the Select by Entity button, you are prompted to select a polyline or line. After you have selected the polyline or line, the Sum Lines By Layer/Level dialog box displays the layer name on which the selected object resides.**
3. **Toggle on the Polylines option.**

4. Click on OK.

The Results dialog box displays. The distance of each line segment is given, as well as the total length. You can save the data or send it to a printer.

5. Click on Close in the Results dialog box.

Example

The following is an example of the Sum Lines by Layer/Level command.

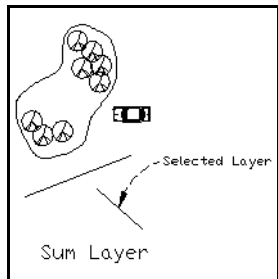


Figure 10-29 Sum Lines by Layer/Level Example

Sum Area by Layer/Level

ADVANCED IRRIGATION ➤ TOOLS ➤ INQUIRY ➤ SUM AREA BY LAYER/LEVEL

KEY-IN COMMAND: ai sumarea

The Sum Area by Layer/Level command allows you to select an object on a layer/level and totals the area of all closed polylines on the object's layer/level. This command is useful for finding the total area of all polylines on a selected layer/level, such as planter beds or turf areas.

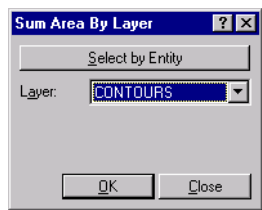


Figure 10-30 Sum Area By Layer/Level Dialog Box

Sum Area By Layer Dialog Box Definitions

Option	Function
Select by Entity	When you click on this button, you are prompted to select a polyline or line in the drawing. After you do that, the Sum Area By Layer dialog box redisplayes with the name of the selected layer displayed in the Layer drop list.
Layer	You may designate a layer by selecting an entry from this drop list.

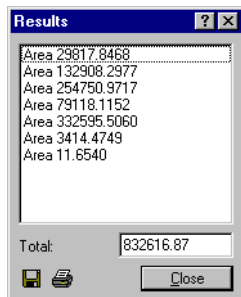




Figure 10-31 Sum Area by Layer/Level Results Dialog Box

Sum Area by Layer/Level Results Dialog Box Definitions

Option	Icon	Function
Area segments		This box lists all border length segments surrounding the area.
Total		This is the total area of all areas enclosed by the selected borders.
Save to Disk		Click on the Save to Disk icon to save the results to a disk.
Send to Printer		Click on the Send to Printer icon to print the results.

QuickSteps

1. Select Tools → Inquiry → Sum Area by Layer/Level.

The Sum Area By Layer/Level dialog box (Figure 10-30 on page 177) displays. You may select the layer/level by clicking on the Select by Entity button or by choosing an entry from the Layer drop list. If you click on the Select by Entity button, you will be prompted to select a polyline or line in the drawing. After you do that, the Sum Area By Layer/Level dialog box redisplay with the name of the selected layer displayed in the Layer drop list.

2. Click on OK.

The area of each closed polyline displays in the Sum Area by Layer/Level Results dialog box (Figure 10-31 above), as well as the total area. Click on Close in the Results dialog box.

Example

The figure below shows an example of the Sum Area by Layer/Level command.

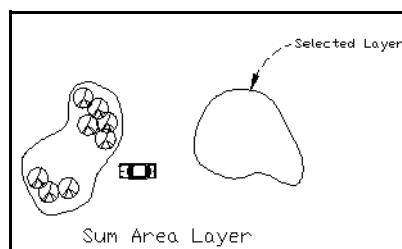


Figure 10-32 Sum Area by Layer/Level Example

Text


There are several Text commands that you can utilize.

Insert Text File

ADVANCED IRRIGATION ➤ TOOLS ➤ TEXT ➤ INSERT TEXT FILE

KEY-IN COMMAND: `ai inserttext`

The Insert Text File command allows you to insert a block of ASCII text into the drawing. This command is useful when you have large blocks of text such as planting specifications that need to be placed in the drawing. It is much faster to type large text items in a word processing package rather than to do it in CAD.

 *When creating large blocks of text in a word processing package, you must use the Save As option and select ASCII (DOS) text. Any custom fonts or settings are lost. The text is inserted according to the current text style settings.*

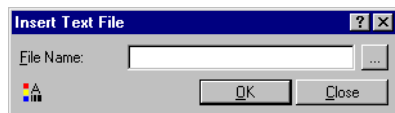




Figure 10-33 Insert Text File Dialog Box

Insert Text File Dialog Box Definitions

Option	Icon	Function
File Name		Enter the path and file name of the text file or click on the icon to the right to browse for the file.
CAD Settings		Clicking on this icon displays the Text CAD Settings dialog box, which provides options that allow you to define the properties of the text to be inserted, such as style, color, height, unit, plotted size, and layer information.

QuickSteps

1. **Select Tools → Text → Insert Text File.**

The Insert Text File dialog box (above) displays.

2. **Type the name and path of the desired file, or click on the Browse icon.**
3. **Click on OK.**

You are prompted:

Locate start point:

4. **Graphically select the desired insertion point.**

The text file is inserted into the drawing.

Example

This is an ASCII text file that was created using the Write Lot Legal command, then inserted using the Insert Text File command.

```
Beginning at a point;  
thence S 86°06'09" E  
a distance of 38.01' to a point  
around a curve to the left  
through a central angle of 105°30'39"  
an arc distance of 46.16'  
a chord bearing of N 01°14'14" W  
a distance of 39.91' to a point  
thence N 53°59'34" W  
a distance of 27.34' to a point  
thence S 44°24'42" W  
a distance of 38.18' to a point  
thence S 24°16'11" E  
a distance of 28.65' to a point  
to the Point of Beginning  
Containing 2251.3661 square feet or  
0.0517 acres more or less.
```


Figure 10-34 Text Example

Place Text on Polyline

ADVANCED IRRIGATION → TOOLS → TEXT → PLACE TEXT ALONG POLYLINE

KEY-IN COMMAND: ai pl acetext

The Place Text On Polyline command allows you to enter a text string and have it follow the path of a polyline. This command can be used if you have a need for text strings that do not follow a straight path – for example, if you have a trail winding through a grove of trees. Placing a straight piece of text to label the trail would encroach on the tree symbols, but using text along a polyline, you can label the path.

 *The text that appears on the polyline is in individual text entities, so if you want to edit the text string at a later time, you may want to erase the entire string and redo it.*

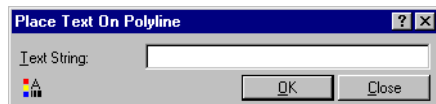



Figure 10-35 Place Text On Polyline Dialog Box

Place Text on Polyline Dialog Box Definitions

Option	Icon	Function
Text String		This is the text to be placed on the selected polyline.
CAD Settings		Clicking on this icon displays the Text CAD Settings dialog box, which provides options that allow you to define the properties of the text to be inserted, such as style, color, height, unit, plotted size, and layer information.

QuickSteps

1. **Select Tools → Text → Place Text Along Polyline.**

The Place Text On Polyline dialog box (Figure 10-35 above) displays.

2. **Type the desired text in the Text String edit field.**

3. **Click on OK.**

You are prompted to select the polyline(s) on which to place the text.

4. **Graphically select the desired polyline(s).**

The text is placed along the polyline(s).

Example

The following is an example of placing a text string along an existing polyline.

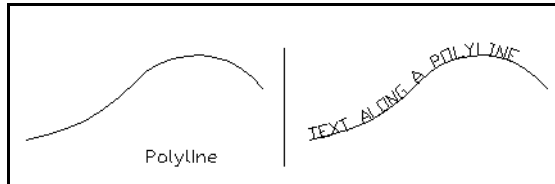



Figure 10-36 Text Along a Polyline Example

Edit Text String Globally

ADVANCED IRRIGATION → TOOLS → TEXT → EDIT TEXT STRING GLOBALLY

KEY-IN COMMAND: ai edi ttext

The Edit Text String Globally command allows you to make changes to multiple pieces of the same text. For example, if Acer Rubrum is misspelled throughout a drawing, this command can be used to correct the spelling for all occurrences in the drawing.

 Use the Edit Text String Globally command to change misspelled text strings that occur multiple times in the drawing.


 The text strings are case sensitive.



Figure 10-37 Edit Text String Globally Dialog Box

Edit Text String Globally Dialog Box Definitions

Option	Function
Old String	The original text string to be modified is displayed in this edit field.
New String	This edit field shows how the text should look after modification.

QuickSteps

1. **Select Tools → Text → Edit Text String Globally.**

The Edit Text String Globally dialog box (above) displays.

2. **In the Old String edit field, enter the original text.**

3. **In the New String edit field, type the text as it should appear.**

4. Click on Apply.

All occurrences of the old text string are modified to the new string.

Example

Before Global Edit	After Global Edit
Before Global Edit	After Global Edit
Before Global Edit	After Global Edit
Before Global Edit	After Global Edit
Before Global Edit	After Global Edit
Before Global Edit	After Global Edit
Original Text	Global Edited Text

Figure 10-38 Edit Text String Globally Example

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